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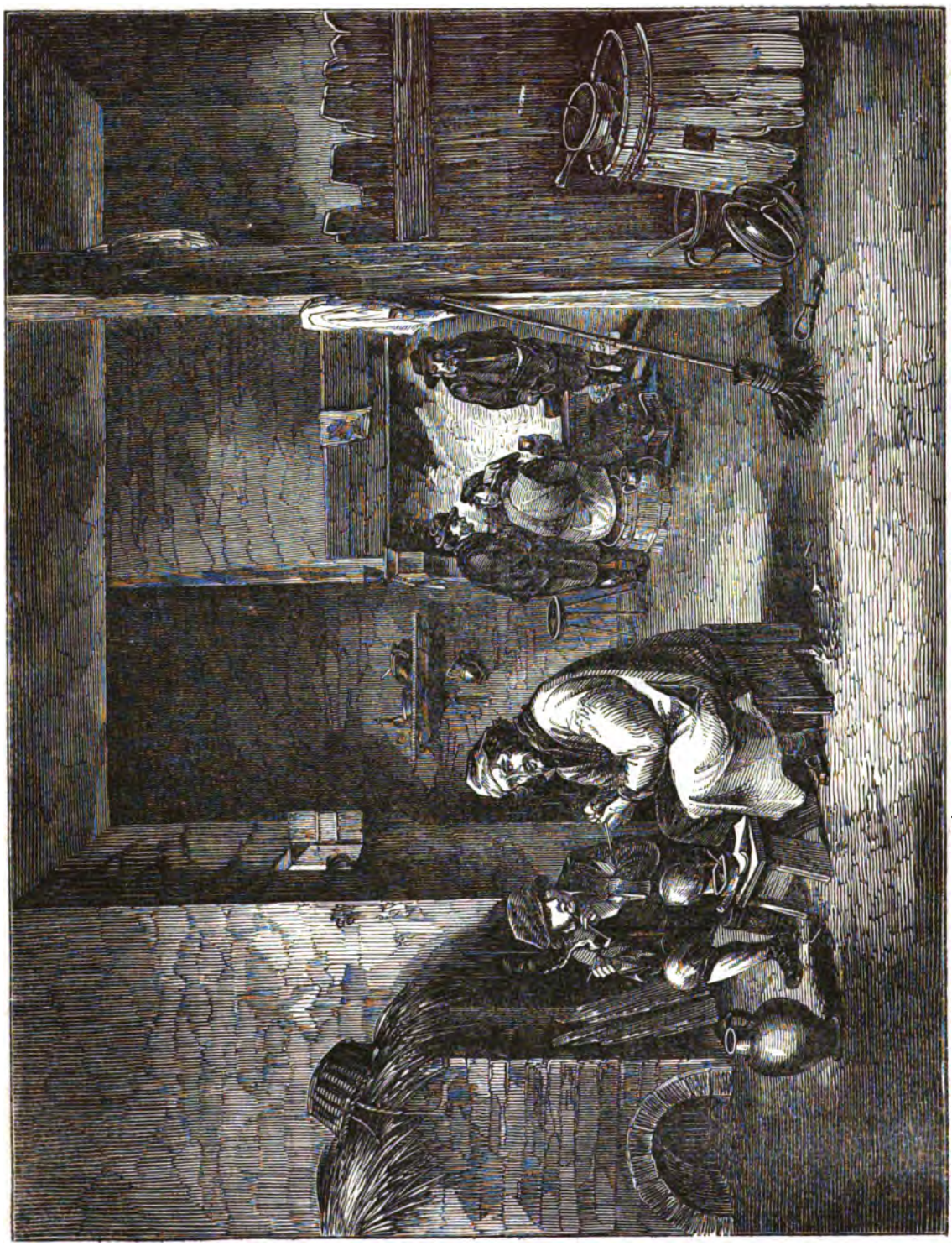
TENIERS AND HIS WORKS.



BOORS SMOKING. FROM A PICTURE BY TENIERS.

TENIERS AND HIS WORKS.

I.

THE artist's occupation, especially when confined to easel pictures, almost precludes the possibility of a life of much incident. Confined to his studio, he pursues the noiseless tenor of his way, and the occurrences of one year generally form an epitome of the whole course of his life.

That he may be rich or poor, industrious or indolent, are accidents that attach to all professions, and only interest when a moral may be deduced from a man of genius, who, by persevering industry, raises himself from a lowly condition to distinction; or, on the contrary, debases himself by indolence and vicious habits from the rank his talents would entitle him to hold*.

The most satisfactory memoir of an artist is that which gives a chronological account of his works:—where, for whom, and under what circumstances they were painted; this enables amateurs to observe the progress of his skill, and the variations of his style.

If it be true that painters as well as authors pourtray themselves in their works, it may be concluded from the works of Teniers that his disposition was gay and humorous, with an attachment to domestic enjoyments, as exhibited in the many scenes he so frequently represented. That he was gentlemanly in his appearance, and amiable in his character, may be inferred from the many portraits of himself which are introduced in his village feasts, &c.:—he is always represented with the air and dress of a gentleman, and being generally accompanied by his wife and children, it is evident that he found his happiness in domestic society.

David Teniers the younger was born at Antwerp in the year 1610. From his earliest years he had the good fortune to receive instructions in his art from his father, an artist of no mean powers. Young Teniers is said also to have studied under Bronwer and Rubens, but this is very doubtful. It is, however, certain that David Teniers the elder had enjoyed the privilege of being a disciple of Rubens, and had gained the esteem of his master. From the school of that celebrated painter the elder Teniers went to Rome, and having attached himself to Adam Elsheimer continued with him six years; and between the styles of his two masters he formed a peculiar, agreeable, and natural style of his own;—he was in fact the inventor of that manner of painting which his son afterwards so happily cultivated and brought to its utmost perfection. The pictures of the elder Teniers are usually small:—his favourite subjects the shops or laboratories of chemists; rural groups, festivals and exercises; temptations of St. Anthony, and Friars; all executed with so much nature and truth, that his pictures procured him great honour and extensive employment.

Under the guidance of his father, young Teniers soon mastered the mechanical processes of his art, and in the course of this early training he doubtless acquired that branch of the art termed *pasticci*, or the power of imitating the Italian Masters, in which he afterwards became so remarkably proficient. His skill in this way must have been early displayed, for we find him first spoken of as "the Ape of Painting;" and afterwards, when increasing years had enabled him to transfer to his canvas the feeling, as well as the mere handling of the great works which he copied, he is referred to as "the Proteus of Painting." Indeed, as Pilkington remarks, the power of his pencil in imitating the works of great painters was incredible. He knew how to adapt it to a variety of eminent artists whose touch and colouring were exceedingly different; and yet he could give his imitations of those masters so strong a character of originality, as to leave it doubtful whether they were not really painted by the very artists, of whose manner of thinking, composing, and pencilling they were only an imitation. Nor does this appear to be an over-estimate of the imitative powers of the younger Teniers' pencil. Mr. Bryan was present a few years ago, at the sale of one of the principal collections of paintings at Brussels, in which was a picture of Mary Magdalen kneeling in a grotto, the figure as large as life: this picture had been regarded for many years by the most experienced judges, as an admirable production of Rubens: some difference of opinion arising, the picture was taken out of the frame, when the name of *David Teniers, Jun.*, with the date, was discovered at the bottom of the picture, which had been concealed by the border of the frame.

The earlier years of Teniers were not free from those struggles with adverse circumstances which so often mark the progress of a man of genius. He was often under the necessity of going in person to Brussels to dispose of his own pictures; and was frequently mortified to see very inferior works preferred to his own. But most probably on account of the novelty in style, and the brown tint of his pictures, they were not understood. It happened, however, that some of his productions attracted the notice of the Archduke Leopold, a great admirer and patron of the art. By order of this prince he painted a great number of capital pictures, and was also employed by him to collect paintings of the Italian and Dutch school to enrich his gallery. Many of these he afterwards copied, and also published a folio volume of prints engraved from them. This volume was published at Brussels MDCLX., and consists of 246 engravings; it is dedicated "To the admirers of the art, greeting." There is a copy of it in the British Museum, which formerly belonged to Sir Joshua Reynolds, whose autograph is written on the titlepage*.

Teniers was suitably rewarded for these services, and honoured by the Duke with the gift of his portrait and a gold chain. Such patronage procured him employment and a ready sale for his works. He also painted several pictures for Queen Christina of Sweden. The King of Spain also became so pleased with his works, that he built a gallery on purpose for their reception. Teniers was also much employed by the Elector Palatine, who so nobly evinced his love for, and patronage of the arts, by the splendid collection formed by him at Dusseldorf, but since removed to Munich.

The illustration to the present article is from a picture in the Louvre. It represents the interior of a *Cabaret* with two boors seated in front; one of whom, dressed in a white frock and cap, is filling a pipe, while his companion, sitting opposite to him is smoking; a low stool with a pot of embers and a paper of tobacco on it, stands near them. In the back of the room are four peasants round a fire. A tub and some pans are in a corner in front. The size of this picture is one foot by one foot eight inches.

Our notice of this artist and his works will be completed in another article.

* SMITH, *Catalogue of Dutch Painters.*

* Sir Joshua Reynolds has expressed his opinion of Teniers in the following terms:—"The works of David Teniers, Jun., are worthy the closest attention of a painter who desires to excel in the mechanical knowledge of his art. His manner of touching, or what we call handling, has perhaps never been equalled: there is in his pictures that exact mixture of softness and sharpness which is so difficult to execute."

PEACE.

Such was thy legacy at parting, Lord!
All power, all willingness to give were thine;
Thou might'st have made earth's richest sons resign
The wealth wherewith their treasuries were stored;
The prince's dignity, the miser's hoard,
The field, the flock, the olive, and the vine,
Pearls from the ocean, diamonds from the mine,—
All these thy bounty could thy friends afford;
Yet none of these were pledges of thy love:
But thou didst leave them on that solemn day
What the world gives not, nor can take away,
Peace, sought in vain when not a gift from Thee:
How doth that legacy our hearts reprove,
Still bent on earthly joys, though vain and false they be!

D. D. S.

SEASONAL WILD FLOWERS.

JANUARY.

Not unlightful now to roam,
The wild heath sparkling on the sight,
Not unlightful now to pace
The forest's ample rounds,

And see the spangled branches shine,
And mark the moss of many a hue
That varies the old tree's brown bark,
Or o'er the grey stone spreads.

And mark the cluster'd berries bright
Amid the holly's gay green leaves;
The ivy round the leafless oak,
That clasps its foliage close.

We are in general prone to look on Winter as a season of gloom and desolation, in which all Nature lies bereft of beauty and interest. Even in the bright frosty days, that not unfrequently call us abroad during this season of the year, and lead us to take exhilarating exercise in the open air, we see not, because we expect not to see, the objects of interest which botanists speak of, as being apparent in all seasons, and as affording them so much pleasure and delight. Or if we mark, amidst the general decay of nature, a few stunted forms, not yet deprived of their leafy clothing, nor wholly stripped of their simple blossoms, not often do we check our rapid pace to form the scanty wreath we might otherwise obtain

From hedgerow, bank, and coppice bough,
To hang on January's brow.

In commencing a series of observations on the wild flowers of our land, we shrink not from the task of producing such a wreath, even though the season be considered unfavourable to its exhibition. We have often sought out the sheltered hollows and sunny slopes, where January's scanty blossoms have been wont to show themselves; and in remembrance of past pleasures, and in the hope of inducing our readers to look with greater interest on such hardy wildlings as dare to show their faces at this season of the year, we offer a few notices of their respective merits and beauties, with such simple directions for the discovery of their botanical character, as may not be inconsistent with the popular nature of this work.

First, then, twine we the runners of the lithe Woodbine:

The first of wilding race that weaves
In nature's loom its downy leaves,
And hangs in green festoons, that creep
O'er thorny brake or craggy steep.

If the weather be tolerably open, we shall not fail to find these green runners, prematurely put forth indeed, and doomed to blacken and to decay under the influence of the nipping frost and biting air, which will supervene ere May arrive to open their lovely and fragrant blossoms; yet still, at this season welcome, as is every green leaf and blade that meets the eye.

Where shall we find a more brilliant blossom wherewith to deck these simple runners, than that which is now

Fringing the fence or sandy wold
With blaze of vegetable gold,
The Furze.

This fragrant plant (for whether our readers are aware of it or not, its bright blossoms yield a pleasing perfume) is spoken of by Dr. Lindley as almost too beautiful for our northern climate; while it is a common anecdote told of Linnæus, that when he first saw it flowering in England, he was so struck with the richness of its golden corollas, which he had never seen blowing in his own severe clime, that he fell on his knees, and offered up a thanksgiving to the great Author of Nature. It is also remarkable that our distinguished botanist, Sir James Smith, commenced the systematic study of plants, by an examination of the common furze or whin. He tells us, that he began on the 11th of January, 1778, "with infinite delight," to examine the Furze (*Ulex Europæus*), the only plant which he met with in flower. He says, "I then first comprehended the nature of systematic arrangement and the Linnæan principles, little aware that at that instant the world was losing the great genius who was to be my future guide, for Linnæus died in the night of 11th January, 1778." It is the frequency of this plant in our country which makes it so little valued or admired: were we to come unexpectedly and for the first time in sight of a furze bush in full blossom, we should view it with a feeling approaching to that of the great founder of systematic botany. It has been stigmatized as

The blossom'd furze unprofitably gay;

but yet it is not useless in an economical point of view. It is extensively cultivated in some places where the land is poor, and is cut every second or third year to make fagots for the use of lime and brick kilns. It is also occasionally used as fodder for horses, being mown when very young, and bruised in a mill to soften its spines.

The common names whereby this plant is known are three in number. Furze, derived from *Fyers*, the Anglo-Saxon name of the plant. It has been supposed that this name was given to it on account of its peculiar dryness, which adapted it for fires. Whin, from *Chywnn*, the name given to it by the Welsh; and Gorse, from an Anglo-Saxon word signifying angry, or irascible, on account of its painful prickliness. Our poets celebrate it under either of these names, as best suits their purpose. Thus, Cowper says:

The common overgrown with fern, and rough
With prickly gorse, that, shapeless and deform'd
And dangerous to the touch, has yet its bloom,
And decks itself with ornaments of gold,
Yields no unpleasing ramble.

And Hurdis:

And what more noble than the vernal furze
With golden baskets hung! Approach it not,
For every blossom has a troop of swords
Drawn to defend it.

But we are now considering it chiefly as it regards the beauty of its blossoms, and we wish those of our readers who are unacquainted with botany, to examine attentively the shape of those blossoms, that they may, as Sir James Smith did, get their first lesson from this brilliant flower. Is there anything peculiar in its shape which likens and associates it with many other common and well-known plants? There is. We cannot look at its curiously arranged petals, without remembering that those of the laburnum, or golden chain, and the broom, are very much like them, though not bristled round with thorns in a similar manner. The laburnum and the broom resemble the furze-blossom in shape and colour; but there are many that differ in colour, and yet have the same shape. Such are the sweet-pea, vetch, clover, trefoil, lucerne, beans and peas of the garden, and many others. These constitute a tribe of flowers so easily recognised, and so abundantly to be procured, that they may well be recommended to the notice of young botanists, who may collect a few specimens of each flower of that kind, as it comes in blossom; examine the different parts, with the assistance of some elementary book on botany; and write down the principal points of resemblance and of difference, preserving these memoranda along with a dried specimen of each plant. Thus may be very easily acquired an acquaintance with the numerous and extensive tribe of *papilionaceous* or butterfly-shaped flowers.

To return to our winter's wreath. We choose not the noxious bear's-foot, or Christmas rose (*Helleborus fœtidus*), formerly described in his work*, but rather take the despised wayside flowers, sometimes showing themselves on southern banks in the depth of winter, but not

* Vol. IX. p. 96.

often gathered or even noticed; we mean the purple and the white Dead-nettle (*Lamium*). These stingless nettles, though classed among worthless weeds, are possessed of much beauty, which can only be appreciated by closely examining their *lipped* flowers. Their strong-smelling leaves may be deemed no acquisition to our wreath, but the delicately marked blossoms are worthy of a place there, and at this season of the year we must not be fastidious. We shall recognise in the admirable structure of these flowers, the same peculiarity which we have found in the splendid scarlet or purple salvia of our flower gardens, and we shall likewise trace a family resemblance to many other flowers, such as lavender, thyme, rosemary, mint, ground ivy, bugles, &c. Most of these lipped flowers (*Labiatæ*) are aromatic, a large proportion of them have perfectly harmless properties, and their favourite places of resort are hedges, woods, and shady lanes.

Our wreath will receive no ungraceful addition if we add the early tufts which already adorn the Hazel, and depend

> In russet drops, whose cluster'd rows,
> Still closed in part, in part disclose
> (Yet fenced beneath their scaly shed)
> The pendent anther's yellow head.

But of floral adornments our supply is so scanty, that if we reject such mean and insignificant plants as the Chickweed (*Stellaria media*), whose tiny greenish-white blossoms are still to be found, and of the Groundsel (*Senecio vulgaris*), whose composite flowers are hardy enough to bear the rigour of the season, we have little else to add, unless the occurrence of comparatively mild weather should induce the Primrose to peep forth and give us an early prestige of the spring. This is sometimes the case in January.

> Mild offspring of a dark and sullen sire!
> Whose modest form so delicately fine
> Was nursed in whirling storms,
> And cradled in the winds.
>
> In this low vale the promise of the year,
> Serene, thou open'st to the nipping gale,
> Unnoticed and alone,
> Thy tender elegance.
>
> So Virtue blooms, brought forth amid the storms
> Of chill adversity, in some lone walk
> Of life she rears her head,
> Obscure and unobserved;
>
> While every bleaching breeze that on her blows,
> Chastens her spotless purity of breast.
> And hardens her to bear
> Serene the ills of life.

The botanical name (*Primula*) of this general favourite and harbinger of spring, is derived from *primus*, first, or prime. Hence the flower has been called prime-rose, which is contracted into primrose. The primrose tribe consist of bright but modest-looking flowers, frequently possessing a slight but pleasing fragrance. To this tribe belongs the lowly pimpernel (*Anagallis*), hereafter to be more particularly noticed, the water-violet or feather-foil (*Hottonia*) and many other familiar plants which will come under review as the season advances. The properties of this tribe are not very marked. The cowslip is slightly narcotic, the root of the primrose possesses nauseating properties, and different species of the pimpernel formerly enjoyed a great reputation as specifics in the case of madness; but their use is now discontinued.

Thus even in January we may generally collect a few flowers, and when Winter,

> Sullen and sad, with all his rising train,
> Vapours and clouds and storms,

may seem to have consigned the vegetable world to desolation and death, the botanist is not then necessarily deprived of all his accustomed pleasures. Speaking of this season, Drummond observes, "Many cryptogamic plants, especially the mosses, now put on their best attire, and to the inquiring eye exhibit a structure more beautiful than is to be perceived in the noblest trees of the forest. At this season, too, the fuci and other sea-weeds furnish an abundant harvest; and Nature, ever benignant, retains some of the natives of the bright summer, and furnishes her admirers with a few sweet specimens to compensate in some degree the loss of the more numerous and gaudy progeny of the days that are gone by."

PROVIDENCE OF GOD.

To those, the eyes of whose understandings are enlightened, and the avenues of their hearts opened, to discern and adore the perfections of God, how manifold are the instances which will occur of the providence of God interfering to direct the course of human events towards a salutary end; to make the afflictions of men the path-way to enjoyment; out of evils temporal and transitory to produce substantial and permanent good. Joseph was sold a bond-servant into Egypt, and thus was made the instrument of preserving his father, and his brethren, and their households. Moses was driven from Egypt by the fear of destruction, and thus was made the instrument of delivering the people of Israel from bondage. In these instances we have infallible authority for affirming the intention and the workings of Divine wisdom. In many we can judge only upon general principles, and from analogy of revealed truth. And who that examines into the course and mutual relation of human events, can fail of being struck by innumerable coincidences, which, however fortuitous they may appear to the inconsiderate and unreflecting eye, will, if duly scanned, bear solemn and convincing evidence to the disposing influence of the providential power of God?

Providence however works by means, and by means most generally of no extraordinary kind, but such as present themselves in the common incidents of human life. It was no miraculous or preternatural, nor marvellous, nor strange disposition of things, which brought Aquila and Priscilla into acquaintance and intercourse with St. Paul. Being originally Jews, they were both parties instructed in a trade, according to the usual Jewish practice. "By their occupation" the two former "were tent-makers, and because he was of the same craft, he abode with them and wrought." The apostle indeed, claimed for himself, as well as for the other ministers of the Gospel, the right of living by the Gospel which he preached; but for special reasons he chose at Corinth to waive that right, and to seek subsistence from other sources, of which the principal was the exercise of the trade, wherein for the supply of any occasional necessity he had been trained. What could be more natural than this, or more agreeable to the common course of things? What more natural, or more agreeable to such course than that on coming to a strange place, he should seek a dwelling and employment with those of the same trade? But it was by these natural and ordinary occurrences that Divine wisdom wrought: after the same manner that God wrought when he made the act of Rebekah, in going out of the city to draw water at the well, instrumental to her meeting the servant of Abraham, and becoming the wife of Isaac; or when he made a similar act of the woman of Samaria, in going to Jacob's well to draw water, subservient to the introduction of her and her fellow-citizens to a knowledge and belief of the Messiah.

Of events, however ordinary and natural, the results are in the hands of him who is the God of nature, "without whom not a sparrow falleth to the ground, and by whom the hairs of our head are all numbered." Our lives are a series of providences. Whatever we do, however free we be to do it, it is as if we should cast seed into the earth; but God giveth it a body, as it pleaseth Him, and to every seed its own body.—BISHOP MANT'S *Primitive Christianity*.

LITERATURE has ever been regarded as the best test of civilization in any age or country; its history may, therefore, be regarded as a record of the progress of mind and the successive triumphs of intellect. But such a record would be imperfect if it did not directly refer to the Great Author of every good and perfect gift, whether physical or intellectual, and collect the indications of God's moral government, which are not less apparent in the universe of mind, than in the universe of matter.

LETTERS TO THE READER.

No. I.

MY DEAR READER,

The fixed and lasting characteristics, which are common to the whole race of human fellow-beings, so greatly exceed in importance those transient qualities which distinguish individuals, that moral sympathy naturally extends from familiar acquaintances to unknown relations. While time, place, and other conventional circumstances, mould only such part of our nature as is peculiar to the individual, the ground-work of the human constitution has remained unchanged from the first creation. Personal peculiarities, family likenesses, and national resemblances, are lost in the bolder outlines of man, when abstracted from the influence of changing conditions, while the affections formed in ordinary society become merged in the charities of universal brotherhood.

The rapidity of communication which is now, for the first time, established between place and place, is giving rise to a corresponding increase in the interchange of thoughts and feelings. The personal appearance, the name, age, position in life, and artificial manners of another, may be unknown to us; but, "the science of human nature is, like all other sciences, reduced to a few clear points," and these first principles, which belong not only to the reader and myself, but to mankind in general, may well be made channels of healthy intercourse. Endowed with the same bodily organs, gifted with the same intellectual faculties and moral attributes, are we not all brethren; has not one God created us?

But, while I recognise this comparative equality of man with man, with respect to the specific and enduring characteristics of his nature, I would especially disown the unphilosophical mixing up of natural with artificial *property*. On the contrary, I consider, that if there be one fact more than another applicable to large numbers of our kind, it is this, namely, that we are not only enabled to bear, both in mind and body, the various inequalities and moral climates of the world, but that exposure of the body to ranges of temperature, of the mind to the vicissitudes of worldly affairs, and of the heart to an education of circumstance and suffering, is absolutely necessary for the excitement of individual action, and to the extension of progressive civilization. The province of every other animal is contracted within a given circle, but the life of man is limited only by the confines of our planet; while the aspirations of the Christian connect our immortality with the universe. During periods of ease we stagnate in inaction, months of continued sunshine weaken our whole frame, and the mind, if not altogether subdued, actually craves after what would under other conditions be considered as hardships.

In truth, my dear reader, most of us confess at heart, that before we can stake our happiness upon outward objects, or, from motives of false philanthropy, desire for others an equality of *things*, we must have forgotten the beauty that belongs to a variety of social levels—the diversified virtues that are put forth under as many trying positions, which are the means of strengthening the sinews of the soul, and so prepare us for putting off the liveries of life for the sable uniform of death. Difficulties are indeed essential to human improvement; else where would be the triumph of subduing them, where the more precious consciousness when we feel our impotence over events, and are thereby reminded of the ALL-POWERFUL, who is ever ready to shelter us, even from ourselves?

Having said thus much, lest you might take it for granted that, with a hollow judgment, I mixed up the idea of an unattainable earthly equality with the indisputable birthrights of our race, I turn, with less reserve to such matters as, to use my Lord Bacon's expression, "come home to men's business and bosoms."

It has been observed, that although the citizens of the United States speak the same language with ourselves, serious mistakes frequently arise between us by reason of the different ideas that are attached to the same words. Daily observation, also, shows that men, even of the same nation, in the degree that they differ from each other in natural temperament, early habits, and education, differ likewise in the ideas that they severally hold concerning the various portions of the universe with which their minds are familiar; and when they employ words that are the artificial symbols of these ideas, the necessity is frequently entailed upon them of translating their significations to each other. On the other hand, Capt. Basil Hall remarks, with surprise, the extent to which he could carry on communications with the natives of the Eastern Seas, of whose languages he was altogether ignorant, provided he could keep them in good humour. These casual facts teach us that the spirit of good will is the first principle of communicating with our species, and that it is idle to use merely the same words, unless we assure ourselves that we correspond with similar ideas. In order to do this, you may say, that men must be educated. But what is education?

Define it as an art, and we must find the subject of it, which, in this case, is MAN. But man is a compound being, whose elements must needs be counted before the effects of education, or of any other art, upon them, can be calculated. Botanical teachers are in the habit of demonstrating the various parts of plants, by selecting such species for inspection as have one or other of their organs remarkably developed. Thus, the large and fleshy *bracteæ* of the artichoke introduce the student to the tiny scales upon the common hawkweed, and so the more extraordinary features of mankind may serve as the index-map of our composition. Could we but ascertain the causes that have awaited upon the fullest growth of every human faculty and feature, it is evident that we should be put into possession of many valuable signs for the avoidance of noxious causes, as well as for the cultivation of wholesome influences.

I need not repeat the worn maxim, that in order to command nature, we must first obey her, except for the purpose of bringing the question to an easy analogy. Before the beautiful principle of Mr. Ward's miniature conservatories was explained in the papers of the day, the first and wrong impression of the facts was, that he had discovered the means of preserving living plants in cases from which all external air was excluded. But the philosopher claimed no *discovery;* copying with close fidelity the soil, air, amount of moisture, and other conditions whereby nature (that is, the laws of the God of nature) brings forth the most exquisite productions of the field, the imitative artist shut out, more perfectly than others had succeeded in doing, the interference of external and injurious agents. The force of air, when expanded by heat, was found to effect a passage for itself through a varnished membrane covering the mouth of a large bottle, in which a plant was growing under the foregoing conditions; and when the air within was contracted by cold, the weight of the external atmosphere (15 lbs. upon each square inch of surface) was fully sufficient to press in fresh quantities of the vital fluid, while there was no pore of sufficient magnitude to allow of the escape of a particle of watery vapour. Ornamental glazed conservatories, of diminutive proportions, made thus *apparently* air-tight, but actually only vapour-tight, are the most perfect of vegetable nurseries; and why? The reason is clear; plants, like animals, are by their nature susceptible of certain influences, some of which promote health, and others cause disease. In the closed glass cases here referred to, the agents of health, as far as man's knowledge over them extends, are included; the agents of disease, excluded.

Apply the same natural *method* to human im-

provement. The constitution of man is, indeed, far more complex, and widely different must be the conditions under which it is most perfectly developed; but the method of studying, with the view of imitating, the means of our welfare, approves itself equally to reason and conscience.

These are physical experiments; but the material tenement is only the lower portion of our being. The intellectual faculties that enable us to watch, and partially to control, the powers of matter, equally demand the culture that is due to animal life; and this mind that commands matter must, in its turn, be subjected to the moral instincts of our conscience. Every village will afford us examples of the success and failure of these physical, intellectual, and moral experiments. The habits of some betray the unworthy triumphs gained by sense over their infirmity of spiritual self-control; the opinions of others are but the expressions of intellectual dissipation; but fortitude through suffering, patience under oppression, sympathy for affliction, belong altogether to another class of individuals. The civilization of the world affords another and broader illustration of these threefold growths. Oriental nations, for the most part, monopolize the unenviable attainment of material, sensual civilization; the tone of their superstitions, arts, and habits, savour of sense. The Greeks of old are undoubtedly the representatives of mental civilization; the very stones of Athens hold captive the mind of the traveller, by reason of the intellectual abstractions which they represent. But, higher than the Greek aspired above the barbarian, did the ancient Jew rise over all people in his spiritual relations; and the relative durability of Jewish, Greek, and Oriental nationality is no inapt scale of the comparative importance of physical, intellectual, and moral science.

By the term *moral science*, I scarcely need observe that I mean that Divine knowledge, which, being beyond the reach either of observation, experiment, or abstraction, has consequently been revealed *not* to the Egyptian, whose eyes were dimmed by material fancies; *not* to the Greeks, lest its source might be confounded with that of their brilliant philosophies; but to a race of shepherds, whose avocations were certainly not such as would lead them to the discovery of sublime truth by the slow processes of inductive reasoning or experimental investigation.

I might trace the destruction of these elements of our being; and science is even now absorbed in the eminently Christian effort of recording every cause that is hurtful to man, socially or individually. It has been observed that the recent *Report upon the Sanitary Condition of the Labouring Population of Great Britain*,

has unveiled dark pictures of our social state, but there is still sufficient to encourage hope; and yet the remedies require an absence of selfishness, and an amount of energy, intelligence, and public spirit, which only a strong sense of approaching danger, and even an appeal to selfishness itself, can bring into combination.

I confess I do not share these fears; and my hopes are founded, not merely upon the efforts of science, but on the practical relation which these bear to the spirit of Christianity. Hospitals, lunatic asylums, and gaols, may be defined as so many infirmaries for those physically, intellectually, and morally diseased. Able men are analysing the *causes* that lead to these results; universal literature is placing before the eyes of all every fresh addition to our knowledge; while legislation is exerting a healthy control over such ascertained evils as cannot be removed by the efforts of individuals. Even the discovery of vaccination, for instance, was not sufficient entirely to overcome the indolence of ignorance; in three months, ending December, 1840, no less than 706 deaths occurred from small-pox in the metropolis alone; but an Act of Parliament for facilitating the universal adoption of vaccination reduced the number of deaths from the same disease, in the last quarter of 1841, to 68 When knowledge is brought to bear against ignorance, and legislation stimulates social inertness against the other injurious agents that are in activity around us we may reasonably anticipate equivalent success.

Of all who are born of the labouring classes in Manchester, 57 per cent. die before they attain the age of five years. I will never believe that medical science is content to cure, or to lessen, the evils under which the minority of 43 may struggle into existence, without investigating, with a patient and humane philosophy, the various causes that destroy the greater number. My reader will agree with me, that *physical education*, or a knowledge of the causes that depress, as well as of those that maintain, life, and the application of this science to the well-being of our children, will soon become a part of our domestic economy, and the extension of the same to the benefit of the poor, a part of our religion; for, of the mortality among the labouring classes no less than 62 per cent. of the total number were under five years of age. "Even amongst those entered as shopkeepers and tradesmen, no less than 50 per cent. died before they attained that period."

I will here prevent the objection that this is a necessary mortality,—that these innocents are *born to die*. M. Mallet mentions that in an establishment for the care of female orphans, (at Geneva, I believe,) taken from the poorest classes, out of eighty-six reared in twenty-four years, only one died.

It will not require much reflection to see the value of the important statistical law, "that the strength of a people does not depend on the *absolute* number of its population, but on the *relative* number of those who are of the age and strength for labour." The 570 children that die, before they attain their fifth year, out of every 1000 children born at Manchester, are replaced by at least an equal number of others, perhaps, equally feeble-bodied. Early and barbarous periods are remarkable for a lavish excess of births, as well as for a prodigious mortality. These facts are common both to uncivilized nations and to the abject classes of more refined countries. The idea, therefore, that a large infant mortality is a necessary "corrective to the pressure of population on the means of subsistence," is as contrary to the facts of science as it is repugnant to the feelings of religion. Where the mortality of man is highest, the births are more than sufficient to replace the deaths, and this fact has long been observed as a consequence even of pestilences. Where the mortality is lower, the number of *adults* is larger, and the average amount of age, strength, skill for productive industry, and other elements of a sound civilization, are increased.

It is proved, that (in Geneva) the real and productive value of the population has there increased in a much greater proportion than the increase in the absolute number of the population. The absolute number of the population has only doubled in Geneva during three centuries; but the value of the population has more than doubled upon the purely numerical increase of the population. In other words, a population of 27,000, in which the probability of life is forty years for each individual, is more than twice as strong for all the purposes of commercial production as a population of 27,000 in which the probability or value of life is only twenty years for each individual.—*Sanitary Report*, p. 184-5.

The *causes* that have contributed to this improvement in the population of Geneva are

generally attributed to the advance in the condition of all classes; to the medical science of the public health being better understood and applied: to larger, and better, and cleaner dwellings; more abundant and healthy food; the cessation of the great epidemics which, from time to time, decimated the population: the precautions taken against famine; and better regulated public and private life

The material ripeness of barbarous nations is to a very considerable degree evidently independent of intel-

lectual culture, or moral civilization; while the physical *education* of the Genevese is manifestly the result of a wise intelligence.

I think it is of much practical importance, however, that the ideas which, in common conversation, we attach to the word education, should not be confined to one or two faculties, or to one element of our constitution, but had better include the healthy development of the whole man. I think you will be struck with the following passage from the examination of the English Magistrate of Dixcove Fort, on the Gold Coast of Western Africa, before a Committee of the House of Commons:—

Q. Are natives of education in great request there?
A. Yes, *if they have a good character.*
Q. Does their own influence with their own people increase or diminish as they become more like Europeans?
A. It increases, *if of good character.*

From this I learn that the natural perception of right and wrong is able to detect the imperfection of civilization, unless that civilization includes the equal education of the nobler with the more earthly attributes of man. France, to whom we owe many elegant arts and useful discoveries, has too often poured forth a population, physically strong, brilliant in intellect, but morally depraved. You will see, from what I have said above, that I am an advocate for the extension of physical education. *That*, indeed, I consider as a Christian duty to be enforced at home, to be explained without, to be extended everywhere. The mortality from *one disease alone*, (typhus fever), resulting from indolence, ignorance, and bad habits, more than doubles the destruction of life occasioned by war. As I deprecate human bloodshed, so would I resist these more serious evils of society. It has been lately calculated that nearly 27,000 pauper cases of premature widowhood, and more than 100,000 cases of orphanage, existing at present in England and Wales, may be ascribed to *removable* causes. Mere money will not prevent the recurrence of these evils; for in Manchester, where the average duration of human life is only 17 years, the wages of the working classes, and the proportions and varieties of meat consumed by them, far exceed the wages and food of the poor of Rutlandshire, whose mean chances of life rise to 38. The same comparison holds good between the town of Leeds and the county of Wilts. Nor is the mortality caused by factory labour, because, as we have seen, in Manchester more than one-half of the children die at five years of age, before they are old enough to enter a manufactory. Neither is it the necessary effect of living in a town, because in certain parts of London the mortality is as low as 1 in 57; whereas, in ill-drained, badly-ventilated, and otherwise neglected districts, it rises to 1 in 28. Physical neglect, then, is the main cause. Am I not justified in the hope that a simple statement of such undoubted evils will excite a generous sympathy in society, and that the proverbial common sense and business-like habits of our nation will not suffer this sympathy to evaporate into sentiment?

But, because outward evils press upon our attention, and we recognise their importance, is that a proof that we are dead to the vital interests of eternity? We all surely confess religion to be *the* education, and the hand and head but able instruments for the purposes of "our better will." Is it for the sake of *matter*, with or without the connexion of the phenomena of life, or for the mere faculty of mind, apart from the power of its philanthropic functions, that I am desirous of multiplying the ideas that we can hang on the word education? If a young person, full of exalted enthusiasm, and, like another Howard, sought means for effectually giving to every home the most enduring benefits, he must necessarily, of course, carry the spirit of the New Testament in his heart, and its words upon his lips; but I would advise him not to forget to arm himself with the instruments of natural science, inasmuch as so long as soul is linked with matter there will be bodily pangs to be assuaged, and diseases, else fatal, to be combated. By these means he may visit the fatherless and the widow with the charities of life, and prevent many others from becoming so. And who, with such moral force as the benefactor, can raise the affectionate gratitude of the distressed from earth's manifold cares to the First Cause of the spiritual and material universe?

The crude idea, however, which follows first impressions of sympathy with the poor, as they occur in the breast of the member of a wealthy society, is, that *wealth* may be made the same means of comfort to others which it is to themselves; but this inference is unsound, as the different conditions imply dissimilar effects. Experience, not always pleasurable, may have taught the giver the knowledge of its use, while the receiver would be almost necessarily unable to calculate beyond immediate wants; not but what we should freely give; still there are higher trusts than money:—time, opportunities, knowledge, enthusiasm, and, above these, a good, honest, practical example.

I am, however, writing this, my dear reader, more to my own conscience than for yours. Excuse so long a letter, and believe me yours affectionately, F.

P.S. If books, facts, principles, or things, can become lines of communication between us, you may hear from me again.

EASY LESSONS IN CHESS.

XI.

Queen's Bishop's Pawn's Game.

WHITE.	BLACK.
1. K. P. two squares.	1. The same.
2. Q. B. P. one square.	2. K. Kt. to K. B. third square.

In our last lesson Black played as his best second move Q. P. two squares: some players, however, prefer to bring out the K. Kt.; a move which, for the reasons already stated, seems to be inferior. It will be instructive to illustrate this mode of play in the present lesson, in order to show the young student how to take advantage of a move, which the most eminent authorities now condemn. A move, theoretically bad, may not be so in practice, unless the adversary take advantage of it: therefore, when a certain move is designated as being bad, it must be understood that, between good players, such a move is calculated to entail a positive loss, or to place the player in an inferior situation.

3. Q. P. two squares.

If Black now take the Pawn, you advance your K. P. upon his Knight, and your position becomes at once a very favourable one for attack; while his position is at once crowded.

3. K. Kt. takes K. P.

4. P. takes P.

You thus recover your pawn, and place a pawn in a favourable situation: while his Kt. is badly situated, and if you wish it, can be expelled without difficulty.

4. K. B. to Q. B. fourth square.

5. Q. to Q. fifth square.

By this move you compel him to make the attack which he threatened, by playing out his K. B. But, as happens with all premature attacks, he becomes worsted in the skirmish.

5. K. B. takes K. B. P. checking.

He might also have taken your K. B. P. with the Kt. You would then have captured his K. B.; and he your K. R., but his Kt. would have been shut up in the corner to be captured presently, while by playing your K. Kt. to K. B. third square, you would prevent him from checking with his Q. at K. R. fifth square. Black, therefore, under the circumstances of the case, plays best by taking the P. with his B. instead of with the Kt.

6. K. to K. second square. 6. K. B. takes K. Kt.

Black, not being able to save both the B. and the Kt.,

does well to take your Kt., because if you play K. R. takes K. B., he moves away his Kt.; and if you take his Kt. with Q. he removes B. to Q. Kt. third square, where the B. would be most advantageously placed, commanding as it would five squares, and co-operating with any pieces that he might be able to bring to attack your K. B. second square. You therefore prefer to capture this B.

7. K. R. takes K. B. — 7. Q. to K. R. fifth square.

By this move Black protects his K. Kt., threatens to capture K. R. P., and afterwards K. R., you therefore play

8. Q. B. to K. third square;

thus not only defending your K. R. but bringing a useful piece to strengthen your position on your K. side.

8. Castles.

The propriety of castling, in the present crowded position, may be fairly questioned; Q. B. P. one square, or Q. Kt. to Q. B. third square, would probably have been better. Black has seven pawns unmoved, and the very operation of castling prevents his K. B. P. from being moved; while the two pieces already in the field are in a precarious situation. Your game on the contrary is open and free from danger, in consequence of the facility which an open game nearly always gives, viz., that of forming new combinations, varying your plan of attack or of defence almost at will; whereas, in a crowded game, the player has but little choice, and is soon at the mercy of his antagonist. In the following moves Black makes the best of his two pieces, and keeps up a smart attack, which, however, being defended with ordinary care, does not endanger your game. There is seldom much to be done with two pieces against five. You will observe that your K., Q., K. R., and K. and Q. Bs. are engaged with his Q. and K. Kt.

9. K. Kt. P. one square. — 9. Q. takes K. R. P. checking.
10. K. R. to K. Kt. second square. — 10. K. Kt. takes K. Kt. P. checkg.
11. K. to K. B. second square. — 11. Q. to K. R. eighth square.

If you capture his Kt. with your K., he takes your K. B. with his Q. If you take the Kt. with your R. you lose your Q.; therefore,

12. Q. Kt. to Q. second square.

You thus defend your K. B.; bring two more pieces into play, and are actually contending with seven against two.

12. K. Kt. takes K. B.
13. Q. R. takes K. Kt. — 13. Q. to K. R. fifth square checkg.
14. K. to K. second square. — 14. Q. to K. R. fourth sq. checking.
15. K. to K. B. second square

It is much better for your K. to keep under the shelter of the two Rooks, than attempt to escape to the Queen's side, which would only prolong the struggle uselessly. Should Black check again, you must move K. to K. Kt. and he has no further check upon you. Black declines this useless check: the skirmish is at an end, and he attempts to open a path for his pieces. We need scarcely remind the young student that, although Black comes out of the struggle without any apparent loss—nay has actually taken three pawns—that his game is lost. By neglecting, for a useless skirmish, to play out his pawns and pieces, he has given very large odds to his adversary, and must lose the game in a very few moves.

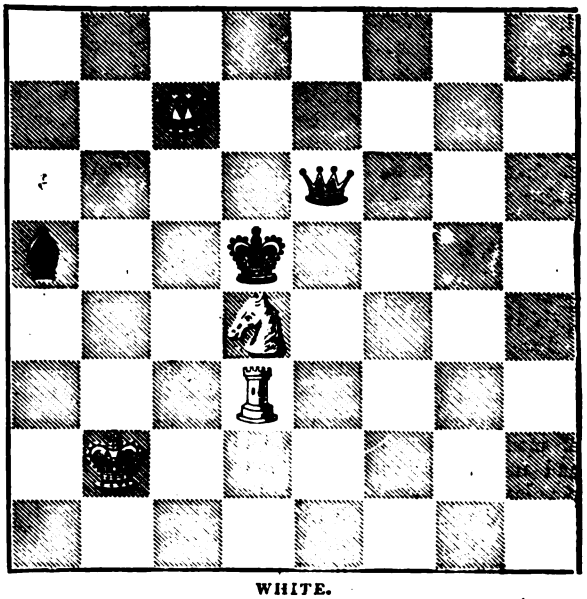
15. Q. P. one square.
16. Q. R. to K. Kt. square. — 16. Q. takes Q. P.

Throughout this game Black appears to play as if under the influence of the false notion, that by preserving the same number of pieces on the board as his adversary, and picking off his pawns, he must eventually win. A very few moves suffice to show this dangerous, but too common fallacy.

17. R. takes K. Kt. P. checking. — 17. K. to R. square.
18. Q. B. to Q. fourth square. — 18. Q. takes Q.
19. R to K. Kt. eighth square, checkmate

PROBLEM VIII. *White moving first is to give checkmate in three moves.*

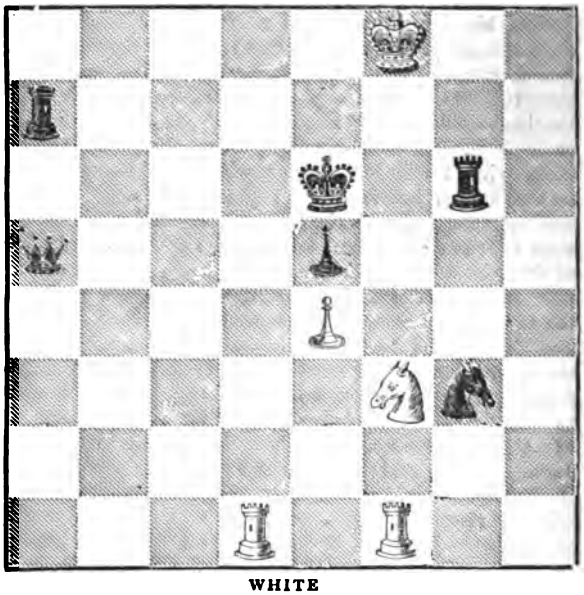
BLACK.



WHITE.

PROBLEM IX. *White to move first, and to checkmate in three moves.*

BLACK.



WHITE

LORD ASTLEY, before he charged, at the battle of Edgehill, made this short prayer: "O Lord, Thou knowest how busy I must be this day, if I forget Thee, do not Thou forget me!" "There were certainly," says Hume, "much longer prayers said in the parliamentary army, but I doubt if there was so good an one."

How cunningly doth the prince of darkness take on him the form of an angel of light! How often have seeming saints proved devils! even in those things (lightly) most faulty, which they make a show of being most free from: some more proud of being thought plain, than a flaunting gallant in his new fashion. Others refusing a deserved commendation, only with a desire to be commended for refusing it: the one hating pride with a more proud hatred, the other shunning praise with a greater vain glory. It is bad to have vices, worse to dissemble them. Plato possessed his rich bed with less pride than Diogenes trampled on it.

JOHN W. PARKER, PUBLISHER, WEST STRAND LONDON.

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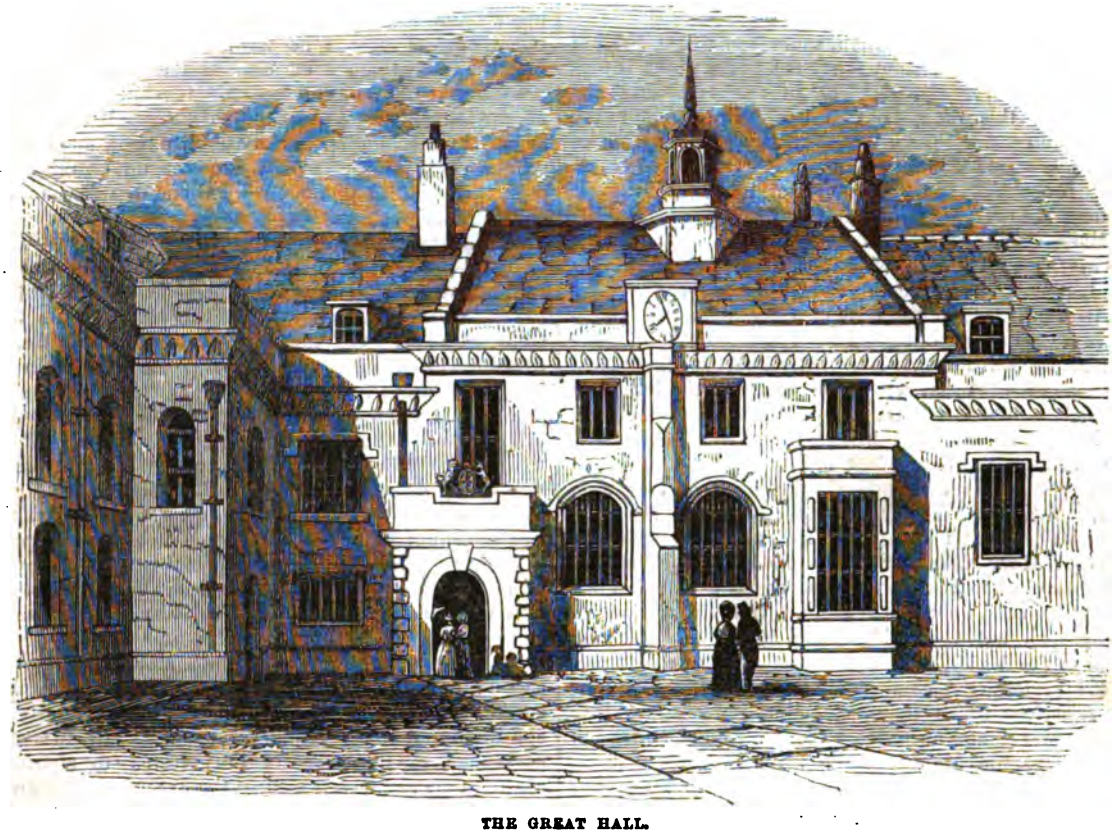
HISTORICAL NOTICE OF THE CHARTER-HOUSE.



THE GREAT HALL.

I.

A PECULIAR and touching interest attaches itself to the history of those fine old scholastic establishments, which, from the nature of their constitution, participate but little in the changes which mark the progress of an energetic and highly civilized people. When once firmly established, they remain as it were living witnesses of the past, useful memorials of the wisdom and benevolence of our forefathers, of the scholastic career of many a distinguished teacher and pupil, and forming striking contrasts by the association of old and new. The old halls are hung about with effigies of the past, and peopled with the youth of the present generation :—men grown grey in the service of the institution, look back upon the past with satisfaction ; and young hearts beat high with anticipations of the future. Such contrasts as these give character to the place, and invest its history with a peculiar charm.

The Charter-House is one of the most splendid as well as celebrated foundations in the metropolis. The site which it at present occupies was formerly part of the estates of the Hospital of St. John of Jerusalem, and consisted of more than ten acres of land. Sir Walter de Manny of Hainault, one of the first knights of the Garter, and who had served in King Edward the Third's war against France, purchased it in the year 1349 of the Knights of St. John, for the pious purpose of interring the dead after the dreadful plague which had visited the metropolis in that year. Sir Walter named the place "New Church Ham," and built a chapel in the centre of the area now called Charter-House Square ; but it was removed before the year 1561, when Lord North conveyed it to Thomas Cotton, schoolmaster, "for the good desyre and affection that he beareth towards the vertuous educacion, and bringing up of yowthe in Learning." This grant was however only during pleasure, and rent-free.

Ralph Stratford, bishop of London, also purchased three acres contiguous to this place, which he likewise converted into a burial ground, and enclosing it with a brick wall, erected a chapel and gave it the name of "Pardon Church-yard." "And served," says Stow, "for burying such as desperately ended their lives, or were executed for felonies ; who were fetched thither, usually in a close cart, bayled over, and covered with black, having a plain white cross thwarting, and at the fore-end a St. John's cross without, and within a bell ringing by shaking of the cart, whereby the same might be heard when it passed ; and this was called the Friary Cart, which belonged to St. John's and had the privilege of sanctuary."

The site of this ground was immediately opposite to the present kitchen-garden of the Charter House, and behind the houses in Wildernees Row.

About the year 1360, Sir Walter conceived the design of founding a college upon this site, for a dean and twelve secular priests. But he was diverted from his plan by Michael de Northburgh, then bishop of London, who purchased the whole cemetery of him, and founded

thereon, in 1361, a convent of Carthusians. But Sir Walter united with the bishop in building and endowing the priory for twenty-four monks; and the munificence of his fortune and patronage probably secured to his name the honour of the foundation, of which the bishop had not been able to deprive him. The pious knight having augmented and established it, with a suitable revenue, King Edward the Third granted his charter in 1371; and the foundation, called "the Chartreux*," was recited to be in honour of God and the Virgin Mary, by the appellation of "The Salutation of the Mother of God." This charter is still preserved among the records of the present establishment.

Of this ancient foundation, there remain at present few traces:—in an ancient tower is a room which is now used to preserve the archives of the Hospital; the ceiling of this room is beautifully ribbed, and the centre stone represents a large rose, inclosing the letters I. H.S. or *Jesus Hominum Salvator*. This room is carefully preserved, and access cannot be obtained to it without the presence of the master, the registrar, and the receiver, with their respective keys.

On the suppression of this monastery in the year 1538, its revenues were valued at 642*l.* 0*s.* 4½*d.*

After having changed owners many times, the Chartreux was purchased in 1565 by Thomas Howard, duke of Norfolk, for 2500*l.* He greatly improved this place; and made it his usual residence:—some of the buildings erected by him form part of the present establishment. At length it became his prison, for having been committed to the Tower in 1569, he was permitted to return in custody to his own house, the plague at that time raging within the Tower liberties; but soon relapsing into his romantic design of the marriage with the unhappy Mary Queen of Scots, he was again seized, and conveyed to his former place of confinement, when he lost his head upon the scaffold. His estates too were confiscated, but Queen Elizabeth generously restored them to the family, the members of which were afterwards gratefully remembered by James the First, for the sufferings which they had endured for his mother Queen Mary; and on entering his new capital, on the 7th May, 1604, his Majesty made his first visit to Lord Thomas Howard, at the Chartreux, and was splendidly entertained during four days. His lordship was here created Earl of Suffolk.

In May, 1611, the earl sold this estate to Thomas Sutton, Esq., citizen and girdler, for 13,000*l.* The premises are described as "Howard House, commonly called the Charter-House, consisting of divers courts, a wilderness, orchards, walks, and gardens, with Pardon Church-yard, and two adjoining messuages, called Willbeck, with all the buildings, ways, &c."

Stow in his *Survey* says, that the late dissolved Charter-House by West Smithfield, as sold by the Earl of Suffolk, "was sufficiently known to be a very large and goodly mansion, beautified with spacious gardens, walks, orchards, and other pleasures, enriched with divers dependencies of lands and tenements thereunto belonging, and very aptly seated for wholesome air, and many other commodities."

With the name of Sutton, the history of the present foundation properly commences. The original intention of the munificent and benevolent founder was to erect a hospital upon his estate at Hallingbury Bouchers, in Essex, and an Act of Parliament for that purpose had actually been obtained; but on the completion of this new purchase, he applied to King James the First for leave to change his original intention, and for the grant of a Charter of Incorporation to found the hospital at Howard House in its stead, he undertaking to endow it with fifteen manors, and other lands and revenues, then of the annual value of 449*3l.* 19*s.* 10½*d.* Accordingly letters patent were granted by James the First, and these were afterwards confirmed by Act of Parliament, in the fourth year of the reign of Charles the First, and a further exemplification was obtained in the eighth year of George the First. These letters vest the establishment and the property belonging to it, in certain governors; they provide for their election and conduct; confer upon them full power over the master, teachers, or other officers of the hospital, and empower them to increase the number of old gentlemen and children, according to the increase of the revenues. They also charge the governors to bestow their several ecclesiastical preferments belonging to the establishment, upon those scholars only who have been brought up on this foundation, and not to give more than one benefice to any one incumbent.

It appears to have been the intention of Mr. Sutton to have presided as master of the hospital; but his health giving way, he nominated the Rev. John Hutton, M.A., vicar of Littlebury, first master on the 30th October, 1611. On the 1st November following, he executed a deed of gift of the estates mentioned in the letters patent, to the governors in trust for the hospital, and on the next day he made his will. He died at Hackney in the following December, at the age of 79. We propose in a separate article, to present a few of the interesting details of the life of this good man.

While it is admitted by the mass of mankind that wealth cannot be disposed of more nobly and happily, than by providing for the spiritual and temporal interests of our fellow-creatures, yet the immediate relatives of a founder, not feeling or appreciating his benevolent motives, are apt to regard with a jealous eye the disposal of property, on which they conceive they have a sort of hereditary claim. Simon Baxter, the nephew and next heir of Mr. Sutton, felt himself thus aggrieved, and instituted a proceeding at common law, to regain possession of the property thus vested to charitable uses. This action was against the executors of the will, to try their right to the lands; but in July, 1612, they filed a bill in Chancery, which was brought to a hearing in the following February, when the action at law was directed to be tried, and a special verdict to be procured. This was accordingly done, and Sir Edward Coke, then chief justice of the Common Pleas, certified that the founder's incorporation was sufficient, good, and effectual in law.

The governors held their first meeting on the 30th June, 1613, when they proceeded to assign apartments within the Charter-House for the different officers, and to make various orders. But the statutes for the good government of the hospital were not finally settled until the year 1627; when at an assembly holden on the 21st of June, certain orders were made and signed by the king, Charles the First. These statutes have at different times been altered and modified in some particulars, but they are still laid upon the table at every assembly of the governors, and are strictly observed in all cases wherein no special order to the contrary has been made.

The orders, as far as they relate to the school, are as follow:—

The scholars of the foundation shall not exceed the number of forty; nor shall any be admitted but such as the schoolmaster shall find and approve to be well entered in learning, answerable to his age at the time of his admittance.

The schoolmaster shall be of twenty-seven years of age at the least, a Master of Arts, of good reputation, both for his life and learning in the Latin and Greek tongues. The usher shall likewise be well qualified for his place, having

* This name (afterwards corrupted into "Charter") was derived from the place where Bruno, the first Carthusian monk, retired from the world, and about the year 1080 founded this order in France. It was situated on a steep rock, in a desert about five leagues from Grenoble; and has given rise to many similar, though inferior foundations in different countries, preserving at the same time its own pre-eminence, by the name of "The Grand Chartreux;" a short account of which is given in the *Saturday Magazine*, Vol. XVI., p. 201

taken degree of Bachelor of Arts two years at least before his election, aged twenty-four years. And if there be such in either University (no discontinuers), and that have been formerly members of this hospital, they shall, *cæteris paribus*, be chosen before any others.

The schoolmaster shall have charge to admit no poor scholar without one new suit of apparel besides that he wears, two new shirts, three new pairs of stockings, three new pairs of shoes, and books for the form he is to be in, or money to buy them; and, if he fail therein, the charge of repairing the wants, shall be discounted out of his own wages.

He shall have certificate, by good proof, from the place whence they came, of the just age of every boy to be admitted, and he shall admit none under the age of ten years and above fourteen, as he will answer the contrary.

He shall keep a book of all such admissions, as also of all scholars sent to the university, or trade, with a particular and punctual setting down the day and year of their coming in and going out.

They shall keep the accustomed hours of *six* in summer, and *seven* in winter, for their coming to school; and *eight* and *three* in the forenoon and afternoon for their collations; and of *six* in summer and winter, if the time of meals will permit, for their leaving off; not failing both morning and evening to begin and end their studies with the Latin prayers and collects now used.

He shall read none but approved authors, Greek and Latin, as are read in the best esteemed Free Schools, and to see those of the upper form furnished with Greek Testaments for their use in the chapel.

Besides the scholars' weekly exercise, they of the highest form shall every Sunday set up in the great hall four Greek and four Latin verses a-piece, upon any part of the second lesson appointed for that day, for the master of the hospital or any stranger to view and examine:—as also two shall be weekly appointed for reading the chapters, and saying grace at every meal in both the halls.

It shall be his care and the usher's charge to teach the scholars to cypher, and cast an accompt, especially those that are less capable of learning, and fittest to be put to trades.

He and the usher shall be diligent in the daily attendance on their charge, and shall not journey into the country without the master's leave. Nor shall they take into their tuition above sixty other scholars unless they entertain another under usher out of their own means, and to be dieted and lodged out of the hospital. Nor shall they receive for teaching those of the foundation any fee or wages from their friends.

They shall be careful and discreet to observe the nature and ingeny of their scholars, and accordingly instruct and correct them. In correction they shall be moderate; in instruction, diligent: correcting according to the quality of the fault in matter of manners, and according to the capacity of the fault in matter of learning.

All other duties of their place they shall faithfully perform; *namely*, to see that the scholars be of modest and mannerly behaviour, well and decently clothed, orderly and seasonably dieted, cleanly and wholesomely lodged:—and that the matron, butler, tailor, and groom, perform their duties to these purposes, otherwise their tutors to be censured by us the governors, and their servants to be punished by the master of the hospital.

We do not pray to inform God of our wants, but to express our sense of the wants which He already knows. As He has not so much made his promises to our necessities, as to our requests, it is resonable that our requests should be made, before we can hope that our necessities will be relieved. God does not promise to those who want that they shall "have," but to those who "ask;" nor to those who need, that they shall "find," but to those who 'seek."—Hannah More.

Let those who inquire into religion recollect, that what is above reason is not, therefore, unreasonable; that where difficulties are found, the word of God is the only sufficient arbiter; and that the best means of understanding any single passage of scripture, is to acquire an accurate and long acquaintance with the whole of the sacred volume.—Heber.

DRINKING HEALTHS.

I.

In no one particular has this country more cause to congratulate itself than in the changes which have taken place among its inhabitants during the present century, in respect to drinking customs. Many of our readers must recollect the period when, among the richer classes, the affording an unlimited facility for, nay a warm encouragement to intoxication at table, was regarded as a sign of the hospitality of the entertainer, and guests were often esteemed in proportion to the number of bottles they could empty. Happily this state of things is now becoming mere matter of history: the time for remaining at table has been much abridged; and no one, but some warm admirer of the "good old times," or some young bon-vivant, upon whom reflection and example have not yet produced their due effect, ventures now-a-day to boast of his exploits at table; at least, not in decent society. Nor need these observations be confined to these classes; an organized change in this respect has spread far and wide among what have been termed the lower orders of society, which is destined to work out a great moral revolution in their habits and modes of thought: all the effects of this cannot be at this time anticipated or predicted; but one of the number will assuredly be the increase of happiness and health in proportion to the abandonment of practices of a sensual and debasing character in favour of those of an intellectual, moral, and elevated nature.

Even the custom of drinking healths seems to be upon the decline, and we have thought that a few historical particulars respecting it will not prove uninteresting to the reader. There can be no doubt that the meeting together of families and friends, at the time of a repast, is a most agreeable and important custom. It has received the sanction and approval of almost all nations, whether savage or civilized. When uncontaminated by excesses it becomes, as has been well observed, "one of the most precious ties of society, causing the temporary disappearance of many invidious distinctions and prejudices.' Aristotle regards as contrary to all sociability the custom of the Egyptians of making solitary repasts, and praises the laws of Minos and Lycurgus, which ordered the citizens to eat in common. Many of the customs and ceremonies observed by the Greeks and Romans in drinking at table much resembled those in use in our own times. The poems of Homer prove that from the earliest periods of Grecian history it was customary for the guests to rise and salute each other during the repast. Subsequent writers show us, that the guests were in the habit of circulating a cup in common, and to drink to the health of each other in succession. In the course of time a methodical system of doing this became established. A king or director of the festival, equivalent to the modern chairman, was elected by lot amidst those assembled, that post not being conferred as a matter of course upon the person who gave the entertainment. A cup of wine was at once presented to him which he pressed lightly to his lips, and it was then passed on from person to person. This preliminary was considered as a symbol of that friendship which should prevail upon these occasions. He took care that during the repast the healths of all the individuals present should be drank, for it was considered as a calamity for any one to quit the entertainment without having been pledged. Towards the end of the repast the healths of celebrated persons were drank in a more solemn manner, and the entertainment terminated by libations to the gods and heroes. Music and singing were listened to at intervals.

The Romans at first contented themselves with wishing each other's mutual good health while they drank; but after their Asiatic conquests had introduced luxuries and abundance into their capital, much more ceremony and importance were attached to the custom. Healths were

drank to the guests, and libations to the gods, these latter however being of a much greater antiquity than the former, as the ancient Romans neither commenced or terminated their repast without invoking their deities, images of whom were often at the time placed upon the tables. In their festivals they did not use the expression of drinking to each other's health, but one analogous to a toast. In private parties they contented themselves while presenting the cup with simply pronouncing the word *propino*, (as did the Greeks,) "I drink before you;" not as Voltaire observes, as expressing a wish as to the health of the party addressed, but simply as inviting him to follow the example thus set. Sometimes a person challenging another drank a little from his cup, and then send it to his friend to finish, the slave afterwards bringing back the cup to him. On grand occasions both the cups and guests were crowned with flowers, generally roses, the petals being often detached and floating on the wind. This occurred only towards the end of the feast, and in honour of some persons of consanguinity or importance, as relations, patrons, the emperor, &c. Several Bacchanalian customs prevailed at these feasts, one of which was that what we should call the toast should be drunk in as many cups as there were letters in the individual's name; thus, six were assigned for Cæsar, and ten for Germanicus. Men of gallantry paid the same compliment to their mistresses; thus Martial says;—

Six cups to Nævia's health go quickly round,
And be with seven the fair Justina's crowned.

Songs and music were mingled towards the end of the meeting with the praises of those whose healths were drank, yet, even amid their festivities was the barbarous nature of the Romans manifested, for the gladiatorial exhibitions were on some occasions then exhibited. The libations to the gods finished the ceremonies. These consisted in throwing wine on the tables or on the ground. Dion Cassius relates that after the battle of Actium the senate decreed that libations should in like manner be offered to Augustus, and after this period several cups were often thus consecrated to different celebrated individuals. The festival terminated by the cup of Mercury, the god of night, the dispenser of sleep and agreeable dreams. Many of the entertainments given by the Romans took place in superb halls. Lucullus had several of these, which bore the names of different deities, and the name mentioned indicated to the servants the expense which was to be incurred for the entertainment. The cost of a supper in the one which bore the name of Apollo was fifty thousand drachmas. Plutarch informs us that Cæsar, after one of his triumphs, entertained the Roman people at twenty-two thousand tables, capable probably of accommodating two hundred thousand persons.

It would not seem that the cotemporary pagan nations, called by the Romans Barbarians, as the Celts, the Gauls, Britons, Germans, &c., made use of any ceremonies or libations; but a pitcher of the liquor employed was brought to the common use of the guests, each one saluting his neighbour as he drank from it, and passing it on. All these nations were, however, passionately addicted to feasting. Their entertainments often lasted for several days, and no undertaking of importance was commenced or completed without one of these. By their liberality in providing such feasts, the chieftains frequently acquired maintained their influence. Athenæus describes one given by Arcamnes, a wealthy Gaul, which continued an entire year, during which whoever came was made welcome.

The early Christians found no difficulty in adopting the custom of drinking healths, joining, however, with it something of a religious nature, by expressing their wishes for the eternal as well as the temporary felicity of their friends. This religious spirit, however, degenerated, and we find St. Ambrose, in the fourth century, lamenting the various profanities to which the custom of drinking healths had led. It became customary also for the early Christians to drink to the memory of the dead; but this being afterwards regarded as an act of idolatry, was anathematized by a council of Nantes, written against by Hincmar, archbishop of Rheims, and forbidden by Charlemagne. The practice was discontinued, and the simple drinking of healths alone permitted. The Church strictly forbade ecclesiastics taking part in noisy festive customs, and especially in drinking healths. A council held at Petricaw, in Poland, prohibits clerks exciting others to drink during their repasts, or even to drink the healths of any one.

In the earliest period of our era, when a sovereign or prince wished to honour any one, and testify his consideration for him, he sent to him his own cup with the remainder of the same liquor of which he had himself partaken. An anecdote is told of St. Martin, who received this honour at the hands of the Emperor Maximus in the fourth century. Before, however, returning the cup to the emperor, he passed it on to his clerk, and he, having drank of it, returned to the emperor, who approved of the boldness of the saint and finished its contents.

He esteemed (says Longueval) that holy bishop, for having preferred to all the imperial power a man honoured with the priesthood of Christ: so that every one exclaimed in the palace that Martin had done, at the table of the emperor, what no other bishop would have dared to do at the table even of a petty magistrate.

This custom of passing the cup as a mark of nonour prevailed in France from the earliest times. Froissart relates that after the battle of Auray, in 1364, the Count Montfort, having called for a cup of wine to quench his thirst, while yet on the field of battle, Chandos, and other English captains, who had so much contributed to his victory, came up to congratulate him; the count, acknowledging the services he had received at his hand, desired Chandos to drink from his own cup.

THE AMMONITE.

THIS curious fossil, which derives its name from its resemblance to the curved horn on the head of the statue of Jupiter Ammon, is very abundant in the Grauwacke group, in which it is found, from a minuteness scarcely perceptible, to the extraordinary size of four feet in width. It was formerly supposed by many persons, to be a species of serpent petrified, though in fact it is the shell of a fish, of a kind now extinct, of which there are various species, but although so many varieties have been discovered they are all pervaded with one peculiarity, namely, the greater part of the shell was a curve formed into numerous air-cells, while the fish itself resided in the outer part, as if a person were to have a long row of chambers, and live only in the front room. Their economy destined them to reside, principally, at the bottom of the ocean, but to be able to rise occasionally to the surface. As we have before observed, the interior curls of the shell were hollow, containing air, which made the fish about the same weight as the element in which it resided, which weight was so nicely adjusted to the water that, by filling, with air or water, a small central pipe, which ran through the entire curve, the fish was enabled to rise or sink as occasion might require. The pressure of the water at the bottom of a deep sea would undoubtedly break in the plates of any ordinary shell, but the Almighty has ordained that the Ammonite should be able to resist the weight of the incumbent fluid by providing it with a peculiar kind of internal arch-work, which so completely meets all human ideas of ingenious contrivance, for the purpose which it was destined to serve, as to form one of the most striking examples of that adaptation of means to ends which is universal in the works of nature, and which is so well fitted to impress the conviction of a great designing First Cause.—

J. G. C.

ESTEEM time as your most precious talent, which when you bestow it upon any you give them more than you can understand. All the power of men and angels cannot restore it to you.—M.

EFFIGIES OF QUEEN ELEANOR, FROM THE CROSS AT WALTHAM.

QUEEN ELEANOR'S CROSSES.

I.

To our nation she was a loving mother, the column and pillar of the whole realm; therefore to her glory the king her husband caused all those famous trophies, wherever her noble corse did rest; for he loved her above all earthly creatures. She was a godly and modest princess, full of pity, and one that showed much favour to the English nation, ready to relieve every man's grief that sustained wrong, and to make them friends that were at discord.—SPEED's *Translation of* WALSINGHAM.

Such is the eulogium bestowed on Queen Eleanora of Castile, wife of our Edward I.; and that it is a just one, and fully borne out by the general voice of the nation in her times, a little examination will fully prove. We are about to describe those memorials of her husband's affection still remaining in our land, which are known as QUEEN ELEANOR'S CROSSES; and we shall attach a greater interest to our subject by relating the principal events in the life of this queen, thus enabling the reader to form a just estimate of her character, and of the share taken by her in the stirring events of the times in which she lived.

Prince Edward was espoused to the young Infanta of Castile when they were both children, Edward being only fifteen years of age; and the Princess Eleanora about five years younger. The marriage had been planned by Henry III. to put an end to his contest with Alphonso, the brother of the bride, and it is remarkable that an union contrived for mere political purposes should have turned out so well. According to a stipulation on the part of Alphonso, the young prince, accompanied by his mother, Queen Eleanor of Provence, went to claim the hand of the princess at Burgos, the capital of Castile, August 5th, 1254. A tournament was held on the occasion, and the young prince was knighted by the sword of his brother-in-law. On the return of Queen Eleanor to England with the youthful pair, great entertainments were made to celebrate the occasion. Henry III. created his son Prince of Wales, telling him to employ his youth in conquering that principality. A dower of one thousand pounds per annum was settled on Eleanora, in case the prince should die before his father.

In 1256 Prince Edward and his young bride went to Bordeaux, where Eleanora was left to complete her education while the young prince visited tournaments, and led the wandering life of a knight errant. He was suddenly recalled to England by the dissensions between his father and the barons, which terminated in a civil war of three years' duration. During all this period the young princess resided in France, and the uncertainty of her future prospects, influenced as they would be by the result of the terrible struggle then going on, appears to have had a favourable effect on her character, and to have nurtured in her that union of patience, gentleness, and decision, which marked her after years, and operated so favourably in many instances, on the impetuous nature of her consort.

The happy restoration of peace, brought about by means of the valour and intrepidity of the young prince, at length permitted of the return of the royal ladies to England. Eleanor of Provence, Queen of England, with her daughter-in-law, Eleanora of Castile, landed at Dover, October 29th, 1265, where they were received by King Henry III. and Prince Edward. The latter found his wife much altered in person and mind during their long separation. He had left her a simple uninformed girl, he found her a lovely and dignified woman, with qualities destined to be the support and joy of his future years. From the period of their reunion to the year 1269, when Prince Edward took up the cross, and joined the Syrian campaign, we meet with little to relate concerning the Princess Eleanora. Her favourite residence was the Castle of Windsor, where three of her children were born, John, Eleanora, and Henry. The

beauty of these children and their early promise might have been supposed a sufficient cause to have prevented the princess from accompanying her husband to the Holy Land, but she cheerfully made the sacrifice, separated herself from her beloved infants, and said, in answer to her ladies who represented to her the hardships and dangers to which she was about to expose herself, "Nothing ought to part those whom God has joined, and the way to heaven is as near, if not nearer, from Syria, as from England or my native Spain."

Early in the spring of 1270 the Princess Eleanora sailed for Bordeaux in order to superintend the preparations for the crusade; and in May of that year she embarked with her husband for the coast of Tunis, on which place Louis IX. of France, had agreed to make, with him, a simultaneous attack. A treaty with the Moors led to a change in the arrangements; Edward and his wife passed the winter in Sicily, where news was brought them of the death of Louis by pestilence, and the destruction of his army. On this Edward was earnestly entreated to give up his expedition altogether; but he energetically declared that he would lay siege to Acre, if he was only followed thither by Fower, his groom. Accordingly the following spring they proceeded to Ptolemais, and Edward made two successful campaigns, defeating the infidel army at Nazareth and at Cahow. They wintered in the island of Cyprus, and proceeded with a reinforcement drawn from thence, to lay siege to Acre in the following spring. Eleanora still attended her consort, and it was at Acre that the incident occurred which gave rise to a romantic story of that princess having saved the life of her husband by sucking poison from a wound inflicted by a Saracen assassin. Eleanora may indeed be said, under the providence of God, to have saved the life of her husband; but it was by tender and skilful treatment during his illness, rather than by any remarkable act of heroism. The circumstances of the case as gathered from the various chronicles of the times, appear to be as follows. The emir of Joppa, under pretence of wishing to become a convert to Christianity, had held frequent communication with the prince by means of an envoy, who proved to be one of the agents of the Old Man of the Mountains, whose band of murderers were known by the name of Assassins*. This wily messenger gradually won his way to Edward's confidence; and on one occasion when the prince was indisposed, he was permitted to enter the royal chamber. Here he found the prince lying on his bed, and slightly clothed, and as his negociations were of a nature to involve the life and honour of the emir of Joppa, the prince was necessarily left alone with him to carry on the conference. The letters which were presented to the prince were of a pleasing nature, and while he was occupied in reading them, the assassin drew near under pretence of delivering another paper, but from the folds of his dress he took out with it a poniard with which he aimed a blow at the side of the prince. But Edward's quick glance had detected the weapon, and he raised his arm just in time to receive the blow on it, and thus defend the vital part. A second thrust was made by the assassin, but Edward threw him to the ground with a kick upon the breast. The struggle was renewed, and Edward dispatched his enemy either by means of a tressel or stool that stood by, or with the very poniard intended for his own destruction. The attendants rushed in, and set upon the assassin, until they were recalled by the stern voice of the prince inquiring "What was the use of striking a dead man?"

Hemingford, the chronicler of these events, inform us that the Grand Master of the Temple immediately sent the prince plenty of precious drugs to stop the progress of the poison, but mortification being apprehended, an English physician recommended extensive excisions, which were to be made in the presence of the nobility and the princess. Edward's language to the physician was, "If suffering may again restore my health, I commit myself to you; work on me your will, and spare not." At these words the affectionate heart of Eleanora was overcome, her firmness forsook her; and she burst into a passion of tears and lamentations. Edward requested his brother Edmund, and a favourite knight, John de Vexi, to bear her from the apartment; but it would seem that they were obliged to employ force on the occasion, ere they could separate her from her beloved husband in this hour of trial. Her brother-in-law told her that it was better she should weep and cry than all England mourn and lament.

The operation was performed with good effect, though the health of the prince remained for a long time in a precarious state; and he always spoke of his final recovery as due to the care and attention of his faithful Eleanora. The romance of the story here alluded to, is only given by Camden, who quotes an authority on which no great dependance is placed. Hemingford makes no mention of this circumstance, nor does Wikes, who only says that the prince was healed by the grace of Christ. At this time Edward made his will and provided for the dowry of his "dear wife Eleanor," committing the guardianship of his children to his brother-in-law, John of Brittany.

During the stay of Edward and Eleanora at Acre, an infant princess was born to them, and named Joanna of Acre. The army of Edward had become much wasted by sickness and famine, and finding it was useless to remain longer in Syria, he accepted proposals of truce from the Sultan, and departed from the Holy Land, leaving behind him a reputation only second to that of his great uncle Cœur de Lion.

On his arrival with the princess and her infant in Sicily, they received the sad tidings first of the death of Prince John, their lovely and promising heir, then of the death of Prince Henry, their second son, and soon afterwards of the decease of Henry III. by which the prince became Edward I. of England. We are told that Edward and Eleonora bore the loss of their children with a degree of resignation and calmness that caused much astonishment at the Court of Sicily. But when Edward was first apprised of the death of his father, he gave way to such a burst of anguish, that the King of Sicily, who was present, asked him how it was that he bore the loss of both his sons with such quiet resignation, and exhibited such bitter grief at the death of an aged man. The answer given by Edward was a just and memorable one: "The loss of infants may be repaired by the God that gave them; but when a man has lost a good father, it is not in the course of nature for God to send him another."

England was at that time in a state of such profound tranquillity that Edward I. and his queen were able to extend their continental tour, and to visit Rome, where they were magnificently entertained by Pope Gregory X. They remained abroad for more than a year, and during that time another heir was born to the English throne, and named Alphonso. This event took place at Maine, November 23, 1272. In passing homewards, Edward made a progress through his French provinces, tilting at tournaments as he went. An account of his arrival with Eleanora in England to assume the royal dignity will be given hereafter.

The figures of Queen Eleanora which adorn the cross at Waltham form the subject of our illustration. All the statues of this excellent queen exhibit a certain degree of grace and beauty; but the figure on her tomb in Westminster Abbey is the most remarkable for its elegant proportions. The countenance, which bears the stamp of individual resemblance, is lovely, both in the form and expression of the features, and leads one to suppose that the wife of Edward I. was a model

* An interesting account of this secret association is contained in *Saturday Magazine*, Vol. X. p. 95, 115.

of feminine beauty, as she was also a pattern of conjugal fidelity and affection. Such a rare union of qualities and endowments was sufficient to inspire the deep attachment manifested by her lord, nor do we wonder at the mild but powerful influence which the sweet-tempered Eleanora evidently possessed over the ambitious spirit of the king. It was not till that influence was removed, and death had deprived him of the interceding voice so often raised on behalf of the offender, that those cruelties were enacted in Scotland, which left the darkest stain on the character of Edward.

The drapery on the figures in our wood-cut will give some idea of the simple and becoming costume worn by the court of Queen Eleanora. An under-gown, or kirtle, made high in the neck, with close sleeves, fell in graceful and easy folds to the feet, forming a train. Over this was worn a robe with full fur sleeves. Some of the ladies of the court adopted the gorget, which was a kind of helmet, formed of white cambric or lawn, with a visor cut for the face to peep through; but the good taste of the queen caused her to reject such an absurdity, and to leave her neck and shoulders unincumbered with the ugly appendage, and only ornamented by the wavy ringlets of her beautiful hair. The women of Spain are remarkable for the richness of their tresses, and Eleonora appears to have shared in this advantage of her countrywomen. Her statues generally represent her with ringlets flowing on each side of her face, and falling on her neck from under the regal diadem. That the household of this queen was supplied with costly and luxurious articles, and that some of the refinements generally attributed to a later date were known and adopted in this reign, is made evident by the interesting researches of modern times. In Herbert's *History of the City Companies* we have a notice of some of the gold and silver articles made for the sideboard of Edward I. Among them are thirty-four pitchers of gold and silver, appropriated to hold water or wines; ten gold cups, from 142*l.* to 292*l.* value each; ten other cups of silver-gilt and silver-white, some having stands and enamelled; and more than one hundred cups of silver, from 4*l.* to 118*l.* value each; also cups of jasper, silver-plates, silver and silver-gilt dishes, gold and silver salts, alms-bowls, and numerous other vessels, all of the precious metals. The list of household plate enumerates among other articles a pair of knives with silver sheaths enamelled, with a fork of crystal; another pair with ivory and ebony handles and studs; pitchers of crystal; *justa*, or small mugs of silver-gilt; a large ewer, set with pearls all over; a comb and looking-glass of silver-gilt enamelled, and a bodkin of silver in a leathern case; gold, silver, and crystal crosses, some set with sapphires, and inclosing relics. The jewels include gold clasps, offered to the different shrines; jewels given by the king to the bishops and restored after their deaths; rings remaining or given as presents; a large silver girdle, with silver and precious stones; a large silver image of the king in a surcoat, and with a hood over his head, and a silver plate under his feet; annealed silver jugs, round which were two figures of the king and two figures of the queen; five serpents' tongues in standards of silver,—these were precious stones so called: *petiaria*, or precious stones, consisting of amethysts, sapphires, topazes, rubies, emeralds, carbuncles, chalcedonies, jaspers, diamonds, garnets, and cameos. Four royal crowns are also mentioned, one set with rubies, emeralds, and great pearls; another with rubies and emeralds; another with Indian pearls; and one great crown of gold, ornamented with emeralds, sapphires of the east, rubies, and large eastern pearls, used at the king's coronation. Among other articles is mentioned a gold ring with a sapphire of the workmanship of no less a personage than St. Dunstan. "This," says Mr. Herbert, "tends to show the antiquity, as well as the traditionary propriety of the Goldsmiths' Company adopting St. Dunstan as their patron."

The above account will be sufficient to prove that the Court of Queen Eleanora was not devoid of splendour and elegance. To this queen is attributed the introduction of tapestry as furniture-hangings, which had been previously employed solely for the decoration of altars, or for grand pictorial representations of national events.

CURIOUS ARITHMETICAL QUESTION.

In a former paper (p. 107 of the preceding volume,) we pointed out the nature of *abstract* and *concrete* numbers, with their relations to each other in discharging the operations of arithmetic. We stated the propriety and possibility of adding together concrete quantities, and also of subtracting them, the one from the other; such quantities being, in both cases, of a like kind. We observed, however, that, in regard to multiplication and division, the multiplier in the one case, and the divisor in the other, at least, must be an abstract quantity.

But a correspondent very naturally asks us, whether, in a "rule of three" sum, we do not multiply and divide concrete quantities by others, which are also concrete; whether, again, we do not achieve the like process in the calculation of interest?

Let us first take an example, which is referable to that which is called the "golden rule," or rule of three.

If 2 yards of silk cost 7*s.*, what will 20 yards cost?

Now the common method of *stating* or arranging this sum for calculation, is to dispose the terms so that the first and third shall be of the same name, and the second of the like kind with the answer required, thus,—

As 2 yds. : 7*s.* :: 20 yds.

But the real nature of the question is better shown thus,—

As 2 yds. : 20 yds. :: 7*s.*

A change which obviously does not affect the result (70*s.* = 3*l.* 10*s.*)

Now when, in either case, we multiply the second and third terms together, we *appear* to have a concrete multiplier; and the first term when used as a divisor, seems also to be concrete. But, in reality, we find the ratio between two abstract numbers, and then seek for a corresponding ratio between two sums of money. We find that 7*s.* bears the same ratio to 70*s.* (the fourth term sought), as 2 bears to 20. It matters not what these numbers mean. They may be yards or inches, miles or furlongs, pounds or ounces. They appear in this case to have the character of yards; but so far as the operation is concerned, they are simply numbers and nothing else.

From a consideration of its readier and more rational application, the second method of *stating*, before given, is found in some elementary treatises on arithmetic. We seem also to multiply concrete quantities, when we perform a common sum in interest; such as,—let us find the interest of 200*l.* for a year at five per cent., per annum.

This is properly a rule of three sum, and stated according to the second case, would appear thus:—

As 100*l.* : 200*l.* :: 5*l.* : 10*l.*

We here find the same ratio subsisting between the third and fourth terms, as between the first and second; or we, in fact, take $\frac{1}{20}$ part of the principal sum for the interest of the same; 5*l.* being paid for every 100*l.*, which = $\frac{1}{20}$. It is therefore evident, by a strict estimation of the subject, that the multiplier or divisor, which we may use, is truly *abstract;* but still, it must be admitted that, in the *practical* application of the various rules of arithmetic, we are constantly multiplying together concrete quantities, or dividing such quantities by the same. The doctrine of abstract and concrete numbers, enunciated in the former article, though irrefragable in itself, is a refined disquisition of the mathematician; but yet desirable to be known and appreciated for the general enlightenment of our ideas of number, and the avoidance of any misapprehension of terms.

SPARE MINUTES.

RESOLVED MEDITATIONS AND PREMEDITATED RESOLUTIONS.

THERE are a sort of men which are kind men to me, when they expect some kindness from me: who have their hands down to the ground in their salutations, when the ground of their salutations is to have a hand at me in some commodity. But their own ends once served, their kindness hath its end at once: and then it seems strange to me, how strange they will seem to grow to me; as if the cause (their desire) being removed, the effect (their courtesy) must straight cease. I will not acknowledge such my friends, but their own: and whenever I see such insinuating palpation, I will bethink me what the authors would have of me: and with a thrifty discretion, rather deny such their requests, than in a prodigal kindness become their friend, more than mine own.

I SEE a number of gallants everywhere, whose incomes come in yearly by set numbers, but run out daily sans number. I could pity the cases of such brave men, but that I see them still in brave cases. And when I see them often foxed, methinks the proverb suits those suits, *What is the fox but his case?* I should think them to be Eutrapelus' enemies, whom he clothed richly to make them spend freely, and grow debauched. I will do those men right, and wonder at them, because they desire it. I will not wrong myself to envy at them, because they deserve it not; nor to pity them, because they scorn it. I know that gorgeous apparel is an ornament to grace the court, for the glory of the kingdom; but it is no ornament useful in the kingdom of grace, nor needful in the kingdom of glory. A rich coat may be commendable in the accidence of Armory only; but it is not the only substance of a commendable gentleman. I will value the apparel by the worthiness of the wearer; I will not value the worthiness of the wearer by the worth of his apparel. Adam was most gallantly appareled, when he was innocently naked.

INGRATITUDE is the character of an ill nature in ourselves, a canker of friendship with others, and the very poison that kills charity in the embryo, being but newly conceived in the pregnant minds of good men, and causing an abortion of liberality, ere it comes to its intended birth. For who will sow those barren sands where he knows he must not only not expect a good harvest, but be sure to lose his seed and labour: yet in these times what is more common or more practised than this ingratitude! For in receiving benefits, who will not (with Enclio in Plautus) find a third hand to reach out to take them? But in requiting, who is not more maimed than the statues of Mercury, which Alcibiades so mangled that he scarce left them a finger, to point out the way to travellers? It is ten to one but we all desire to be cured of the leprosies of our wants: yet scarce one of ten of us returns to give thanks for the cure. I will not think myself so enriched by receiving a courtesy, as engaged to be thankful for it. I am not left a free man at my liberty by taking a man's free liberality; but I sell my freedom for his benefits. I cannot deserve to be gracious with my friend, if, with the Graces, I look not with two faces back to requite as well as with one forward to receive.

As in the greater world for man, so in the little world of man, as in the outward riches of the one, so in the inner treasures of the other, many possess much and enjoy but little, many have much and use but little, others use much, and but little well. I shall not so much endeavour to have much wherewithal to do, as to do much with that little I have. It shall not so much grieve me that I am a poor treasurer, as joy me if I had been a good steward. I could wish I had more to use well, but more wish, well to use that I have. If he were so blamed that employed not one talent well, what would become of me, if I had ten and abused them?

As it is never too soon to be good, so it is never too late to amend: I will therefore neither neglect the time present, nor despair of the time past. If I had been sooner good, I might perhaps have been better: if I am longer bad, I shall, I am sure, be worse. That I have stayed long time idle in the market-place deserves reprehension, but if I am late sent into the vineyard I have encouragement to work, *I will give unto this last as unto thee.*

[ARTHUR WARWICK, 1637.]

PROTECTION AGAINST VARIABLE CLIMATES.

THERE is nothing in Nature more inconstant than the British climate, if we except the humour of its inhabitants. We have frequently in one day all the seasons of the year. I have shivered in the dog-days, and been forced to throw off my coat in January; I have gone to bed in August, and rose in December.

I remember a very whimsical fellow, (commonly known by the name of Posture-master,) in king Charles the Second's reign, who was the plague of all the tailors about town. He would often send for one of them to take measure of him, but would so contrive it as to have a most immoderate rising in one of his shoulders. When the clothes were brought home and tried upon him, the deformity was removed into the other shoulder. Upon which the tailor begged pardon for the mistake, and mended it as fast as he could, but upon a third trial found him a straight-shouldered man as one would desire to see, but a little unfortunate in a hump-back. In short, this wandering tumour puzzled all the workmen about town, who found it impossible to accommodate so changeable a customer. My reader will apply this to any one who would adapt a suit to a season of our English climate.

After this short descant on the uncertainty of our English weather, I come to my moral.

A man should take care that his body be not too soft for his climate; but, rather, if possible, harden and season himself beyond the degree of cold wherein he lives. Daily experience teaches us how we may inure ourselves by custom to bear the extremities of weather without injury. The inhabitants of Nova Zembla go naked, without complaining of the bleakness of the air in which they are born, as the armies of the northern nations keep the field all winter. The softest of our British ladies expose their arms and necks to the open air, which the men could not do without catching cold, for want of being accustomed to it. The whole body by the same means might contract the same firmness and temper. The Scythian that was asked how it was possible for the inhabitants of his frozen climate to go naked, replied, "Because we are all over face."

I verily believe a cold bath would be one of the most healthful exercises in the world, were it made use of in the education of youth. It would make their bodies more than proof to the injuries of the air and weather. It would be something like what the poets tell us of Achilles, whom his mother is said to have dipped, when he was a child, in the River Styx. The story adds that this made him invulnerable all over, excepting that part which his mother held in her hand during this immersion, and which by that means lost the benefit of those hardening waters. Our common practice runs in a quite contrary method. We are perpetually softening ourselves by good fires and warm clothes. The air within our rooms has generally two or three more degrees of heat in it than the air without doors.

Crassus is an old lethargic valetudinarian; for these twenty years last past he has been clothed in frieze of the same colour and of the same piece. He fancies he should catch his death in any other kind of manufacture. He could no more live without his frieze-coat than without his skin. It is not indeed so properly his coat as what the anatomists call one of the integuments of the body.

How different an old man is Crassus from myself. It is indeed the particular distinction of the Ironsides to be robust and hardy, to defy the cold and rain, and let the weather do its worst. My father lived till a hundred without a cough, and we have a tradition in the family that my grandfather used to throw off his hat, and go open-breasted after fourscore. As for myself, they used to souse me over head and ears in water when I was a boy, so that I am now looked upon as one of the most case-hardened of the whole family of the Ironsides. In short, I have been so plunged in water, and inured to the cold, that I regard myself as a piece of true-tempered steel, and can say with the above mentioned Scythian, that I am face, or if my enemies please, forehead, all over.—*Guardian.*

IT is in the time of trouble, when some, to whom we may have looked for consolation and encouragement, regard us with coldness, and others perhaps treat us with hostility, that the warmth of the friendly heart, and the support of the friendly hand, acquire increased value, and demand additional gratitude.—BISHOP MANT.

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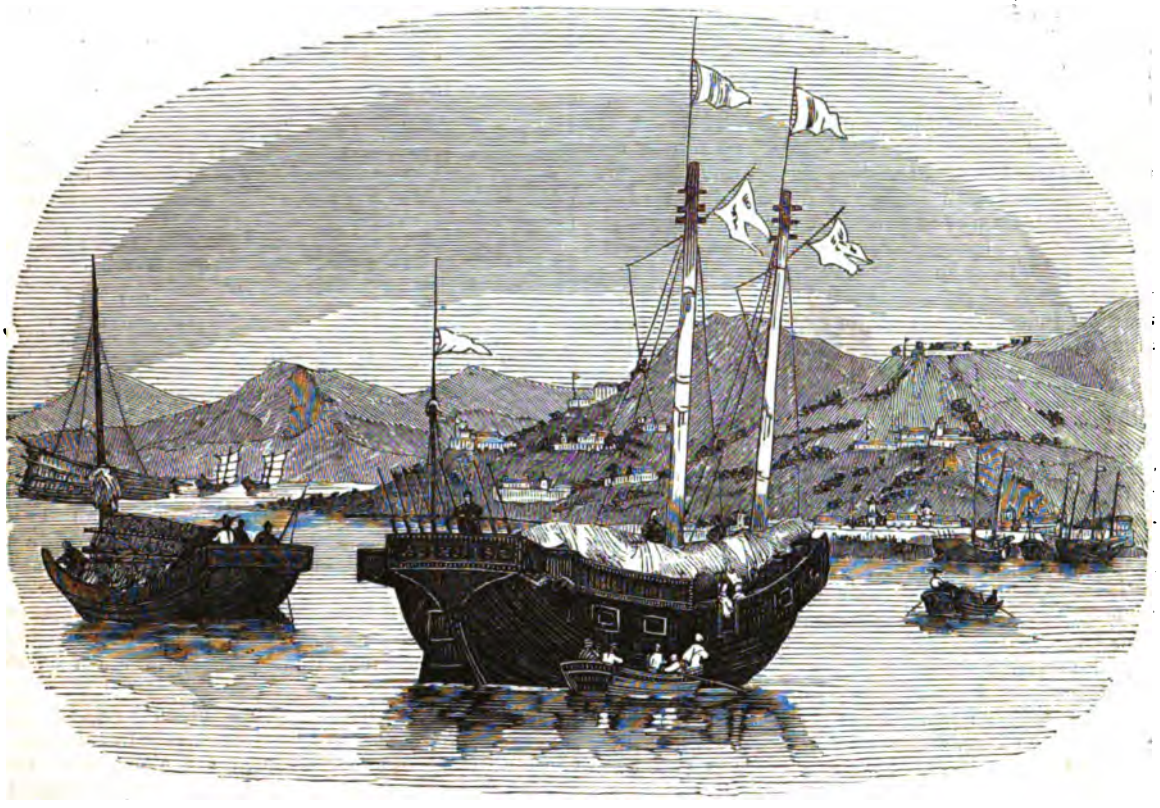
THE FIVE PORTS OF CHINA OPEN TO BRITISH TRADE.



AMOY, FROM THE ANCHORAGE, SHOWING THE FORTS.

I. AMOY.

In previous volumes of the *Saturday Magazine* we have given a historical notice of the origin and progress of the British trade in China; of the city and province of Canton; and of the manners and customs of the Chinese in general; thus presenting such interesting details respecting the remarkable inhabitants of this great empire, as the sources of information up to the present eventful period had enabled us to collect.

But our recent contest with the Celestial Empire, and the interest which has now become attached to those portions of China which have been the scene of conflict, or which are thrown open to us by the late treaty, have caused so much inquiry on the subject, and have clothed the accounts of the latest writers with so great a charm, that we proceed to place before our readers a particular notice of the towns most frequently named in connexion with late events; and especially of the five ports now opened to British enterprise and commerce; together with such additional notices of the Chinese character and condition as our increased acquaintance with their country has enabled us to obtain. A clearer idea will be gained of the subject if our readers will refer to a map of China, as they peruse these articles. They will meet with some inaccuracies in most of our maps, when compared with the latest intelligence, yet they will find it advantageous to consult them.

The five ports we shall notice in the following order—

I. Amoy. II. Foo-Choo. III. Ning-Po. IV. Shang-Hai. V. Canton.

Amoy is a celebrated sea-port in the province of Fokien, on the eastern coast of China, and it will be seen by reference to our illustration, that its scenery has somewhat of a picturesque character, although not indicative of great fertility. Amoy is seated on the left side of a bay which deeply indents the country and forms numerous islands. The importance of this place as a British trading post may be estimated by the description of the city given by the Rev. Mr. Gutzlaff.

The city is very extensive, and contains at least two hundred thousand inhabitants. All its streets are narrow, the temples numerous, and a few large houses owned by wealthy merchants. Its excellent harbour has made it from time immemorial one of the greatest emporiums of the empire, and one of the most important markets of Asia. Vessels can sail up close to the houses, load and unload with the greatest facility, have shelter from all winds, and in entering or leaving the port experience no danger of getting ashore. The whole adjacent country being sterile, forced the inhabitants to seek some means of subsistence. Endowed with an enterprising spirit and unwearied in the pursuit or gain, they visited all parts of the Chinese empire, gradually became bold sailors, and settled as merchants all along the coast. Thus they colonized Formosa, which from that period to this has been their granary; visited and settled in the Indian Archipelago, Cochin-China, and Siam. A population constantly overflowing demanded constant resources for their subsistence, and this they found in colonization.

This they have promoted all along the coast of China up to Mantchou Tartary. As soon as the colonists amass sufficient money, they return home, which they leave again when all is spent.

From other sources we learn that the city of Amoy presents the same ill-built appearance which is common to Chinese towns. The public offices, however, are extensive, and there are residences for the admiral of the station, the vice-admiral of Formosa, the *hoppo* or commissioner of customs, &c., and a foundling hospital. In a pond near the latter our countrymen found many bodies of infants sewed up in matting, which led to the belief that infanticide, a crime which prevails to a lamentable extent in China, was also practised in this neighbourhood. Others imagined that this pond was merely the cemetery of the hospital.

During the south-west monsoon, or trade-wind, the merchants of Amoy lade their vessels at Formosa with sugar, which they sell at various ports to the northward, returning home with cargoes of drugs. Junks of the largest class, some of them of eight hundred tons burden, go to Borneo, Macassar, Java, and the Soo-loo islands; and many of them annually visit Sincapore in order to procure goods of British manufacture. The records of the East India Company inform us that this port has not always been closed against European vessels. In 1675 a proclamation was issued inviting foreign merchants to trade thither, and exempting them from the payment of all duties for three years. But on vessels resorting to the port, the exemption was soon withdrawn. The exactions of the mandarins finally put a stop to the trade. On a visit of the ship *Amherst* to Amoy in 1832, it was found that the obstacles to trade lay with the authorities and not with the people, who received our countrymen in the most friendly manner.

The authorities have not only thus checked the foreign trade of Amoy, but they have imposed such heavy exactions on the native vessels, as might have been supposed enough to check the spirit of commerce manifested by this enterprising people. Small junks pay more than a thousand dollars regular duties, besides tribute to the emperor in produce, in bird's nests, &c., each time they enter the port, unless they bring a cargo of rice, when considerable remission is made. The irregular and oppressive exactions of the local government have latterly caused some of the leading merchants to remove to Shanghai, Canton, and other places, where they conduct a trade with the aid of junks and men from their native district. While we are on the subject of duties and imposts, we may present to our readers some interesting details respecting taxation in general among the Chinese, which we gain from Professor Kidd's elaborate work on China.

Revenue is raised by taxes on the land, which are partly in grain, partly in money, according to the nature of the soil, and the kind of produce it yields. In the early history of the Tartar dynasty a census of the whole population was taken, for the two-fold objects of levying a poll-tax, and ascertaining the number of males capable of military service. This tax was afterwards blended with the land-tax, and finally interdicted, but the census was restored under other sovereigns.

Large resources of wealth and intelligence are requisite for the efficient support and control of such a vast population as that of China.

The sum raised annually for the service of the state in *Pin-chih-le*, the province where the court resides, is nearly 2,000,000 of taels of silver, (in round numbers, about 600,000*l.* sterling,) from which 280,000*l.* are retained for current expenses. *Ho-nan*, which is the most productive of all the provinces, remits nearly 3,000,000 of taels of silver; and retains little more than one-eighth of its revenue for current expenses. *Canton* raises something short of 900,000 taels, from which 244,000 are deducted. *Kwei-chow*, which is the least productive of the whole, raises 70,000 taels, out of which it expends 29,000. These sums are totally inadequate to the expenses of the empire, and hence a large field is open for extortion and oppression, to which recourse is had for supplies needed by the state, but not sanctioned by the law.

The officers employed in collecting the land-tax are named as being especially guilty of oppressive and iniquitous exactions.

Government maintains a strict monopoly of various articles of consumption; and there are store-houses of grain contributed by the people to the state. Ten thousand boats are employed in conveying this grain from all parts of the empire. Salt is strictly a government monopoly. In one year of a late emperor its consumption amounted to nearly 6,500,000 *yin*, a yin being upwards of a hundred weight.

Mines of the precious and common metals are sources of public wealth, from which the government expects its prescribed proportion. Of the silver, copper, tin, iron, and lead mines in different parts of the empire, which might yield revenue, some are permitted to be worked, and others forbidden, without any reason being assigned, but probably from fear of exhausting their resources. The precious metals, except by weight, as any other commodity, are not employed in circulation. Red copper is the only coin current in China, a thousand of which, (called *tseen*) make a tael or *leang*.

The transit of goods also affords an opportunity of taxing them, whether it refers to imports, exports, or internal trade. The various custom-house duties levied at the confluence of large rivers inland as well as on the sea-coast yield, doubtless, a considerable annual income; but the local officers are said to derive the greatest profit from such resources.

Thus it will be seen that the Chinese, in common with their European brethren have somewhat to endure in the shape of taxation, and stand on no vantage ground in this respect.

We now return to our account of Amoy, and proceed to describe *Ko-long-soo*, which is the key to that port, and occupies an important position in the Formosa Channel.

The island of Ko-long-soo is of an irregular oval form, stretching east and west, or nearly in such direction; it is about two miles long, and about twice that distance in circumference. It consists of a mass of granite which protrudes to a great height in several places, in the form of immense rounded blocks. Among the rocks under their shelter were found a number of stone jars with covers luted on. These jars contained perfect human skeletons disarticulated, each bone carefully packed, and numbered, and marked with red paint. The island is naturally barren, but most excellent water abounds at a few feet from the surface,—a circumstance which Chinese industry has taken advantage of in every situation at all favourable to cultivation. The sweet potato, and a sort of dhall, are the principal products. There are five villages, and in two of them large trees are to be seen, preserved apparently for the shade which they afford. The guava flourishes in the gardens, and the vine trailed over trellis is occasionally met with.

The province of Fokien, in which Amoy is situated, is the smallest of the provinces of China, but is reckoned among the richest, on account of its extensive commerce. We shall have to speak of this province on a future occasion, for in it also lies the port of *Foo-choo-foo*, the second in our list of the ports opened to British traders.

When our countrymen entered Amoy they found immense magazines with all the munitions of war stored up there. Bullion to the amount of twenty thousand dollars was also found there.

We have already alluded the visit of the ship *Amherst* to the port of Amoy. An extract from Mr. Lindsay's description of the intercourse held by him, and by the Rev. Mr. Gutzlaff, with the natives of that place, will give a favourable idea of the population of Amoy.

During the six days we remained at this place we daily

landed for exercise, entered both the town and adjoining villages, and took long rambles about the country in every direction. When in the neighbourhood of Amoy we were generally attended by a party of soldiers and mandarins, who were uniformly polite, and assured us their only reason for accompanying us, was fear lest the unruly populace should do us an injury; but we always were anxious to escape from their offered protection, and to throw ourselves on the kind and friendly feeling of the people, which it was really gratifying to witness, whenever no mandarins or their satellites were present to check the spontaneous expression of their good will. On these occasions our party rarely consisted of above three or four, and always unarmed, (excepting a fowling-piece which I sometimes carried,) for my object was to show to the people that we reposed in perfect confidence on their hospitality, and that we had too good an opinion of them even to suspect that they could harbour a thought of injuring strangers, who had come as friends to visit them from a distance of many thousand miles. On many occasions when Mr. Gutzlaff has been surrounded by hundreds of eager listeners, he has been interrupted by loud expressions of the pleasure with which they listened to his pithy and indeed eloquent language.

From having lived so long among the lower classes of the Fokien people, Mr. Gutzlaff has obtained a knowledge of their peculiarities, both of thought and language, which no study of books can convey; and this is coupled to a thorough acquaintance with the Chinese classics, which the Chinese are ever delighted to hear quoted, and a copiousness of language which few foreigners ever acquire in any tongue besides their own. The power which this gives any person over the minds of the Chinese, who are peculiarly susceptible to reasonable argument, is extraordinary, and frequently caused me to regret my own comparative ignorance. Every day that I live in China convinces me more deeply that a very leading cause of the present degradation of foreigners in Canton, is general ignorance of the language of the country, and the substitution of a base jargon as the only medium of communication; so that foreigners are very generally spoken of in the most contemptuous terms before their face, of which they remain in perfect ignorance, from a want of knowledge of the language, a very limited acquaintance with which would ensure much more respect from natives of all ranks.

DRINKING HEALTHS.

II.

In the first portion of this paper we gave a sketch of the custom of drinking healths, as it prevailed amongst the Greeks and Romans of old, and showed also that to some extent it entered into certain religious practices of the early Christians. We now proceed with the history with reference more particularly to our own country.

Henry observes that the Danes and Anglo-Saxons were of a social disposition, and delighted to form themselves into guilds and fraternities of various kinds, which were cemented by frequent convivial meetings and compotations. The laws of the Anglo-Saxons rendered these associations compulsory, for every head of a family was obliged to belong to the decennary, or neighbourship, in which he lived, and to eat and drink at the common table. Severe fines were imposed on such as neglected friendly offices on such occasions, or employed offensive language towards each other. But these meetings, although they strengthened the ties of friendship, and restrained ferocity of disposition, yet encouraged the habits of excessive drinking to which the Saxons were addicted: that this prevailed is evident from the statutes and laws passed to restrain excesses, and which, from the shameful degree of intoxication to which they were alone applicable, prove to what an extent that vice could be indulged with impunity. William of Malmesbury says, the nobility was much addicted to lust and gluttony, but excessive drinking was the common vice of all ranks of people, in which they passed whole nights and days without intermission. Even the religious festivals were not exempt from these excesses, and large draughts of liquor were drank to Christ, the Virgin and the saints. Dunstan persuaded Edgar the Peaceable to abolish many of the houses for drinking ale, and to order that the drinking cups should have nails or pins fastened in them at intervals, to drink beyond which was severely punishable. Like their German ancestors, the Anglo-Saxons delighted in feasting. Their nobles expended the great bulk of their fortunes in providing entertainments for their friends and followers. Their kings entertained all persons of note for many days in succession at the great festivals of Christmas, Easter, and Whitsuntide, and this in the most sumptuous and expensive manner. These feasts were more abundant than elegant, and substances were introduced at them, of which a famine alone could induce persons of our own times to partake. Thus in a council held in Northumbria, in 785, we find the following injunction: "Many among you eat horses, which is not done by any Christians in the East:—avoid this." At the convivial meetings the guests were accustomed to sing in turns; and Bede mentions that formerly a harp used to be sent round also from person to person. To this was often added the recital of poetry, the tricks of buffoons, jugglers, &c. As these scenes were believed to be ill-suited to ecclesiastics, the Council of Cloveshoo forbade monks to let their houses become the receptacles of "poets, harpers, mimes, and buffoons." The canons of Edgar notice with reproaches the gleemen or jugglers as frequenting the monasteries, and forbade a priest to become eala-soop (ale-poet) or to play the gleeman with himself or others.

The term pledging a person's health has been referred by some antiquarians to the time of the Anglo-Saxons. It is said that the Danes, being of a treacherous nature, were accustomed to invite the Saxons to their feasts, and stab them while in the act of lifting the glass to drink. At last the Saxons would never drink in company unless some one present pledged them that they should receive no hurt. Strutt says that the old manner of pledging each other was for the person who was going to drink to ask one of the company near him, whether he would pledge his safety. If the person so appealed to answered in the affirmative, he held up his sword or knife as a guard to his friend while in the exposed posture employed in drinking. To pledge signifies in old French to promise or guarantee, and it has been suggested that the original signification of the term employed in this sense was that persons, who at the banquets did not feel themselves able to reply to numerous challenges addressed to them, might choose some one as a pledge, or promise for them, to drink in their place.

Although the Normans were originally as great barbarians as any other of the Scandinavian nations, yet prior to their conquest of England, they had become much civilized through the influence of the Christian religion, and the example of the French nation, among whom they had become located, and with whose manners and customs they were identified before the time of their invasion. They were at this period favourably contrasted with the Saxons in respect to sobriety. Contemporary authors observe the difference in this respect. "The Normans were very unlike the English in respect to the excessive eating and drinking," says William of Malmesbury, "being delicate in the choice of food, but seldom exceeding the bounds of temperance. By this means the Normans lived in greater elegance, and at less expense than the English."

Some of the monkish writers, comparing the state of things prior and subsequent to the conquest, deplore the change which had taken place; one of them says: "The kings were then so generous and bountiful that they commanded four royal banquets to be served up every day to all their courtiers, choosing rather to have much superfluity at their tables than the least appearance of deficiency. But, alas! it has become the custom at court in our times, to have but one entertainment a day, out of politeness it is pretended, but in reality from a sordid economy." The custom, however, of drinking to

the pegs, instituted by Edgar, still prevailed; thus the Council of Westminster forbade, in 1102, the clergy to frequent the ale-houses, or to drink to the pegs.

If we are to believe the statement of Peter of Blois, which, however, is probably prejudiced or exaggerated, the Normans soon acquired some of the dissipated manners prevailing in Britain. He says,—

When you behold our barons and knights going upon a military expedition, you see their baggage-horses loaded, not with iron but with wine, not with lances but with cheeses, not with swords but with bottles, not with spears but spits. You would imagine that they were going to prepare a great feast rather than to make war. There are even too many who boast of their excessive gluttony and drunkenness, and labour to acquire fame by swallowing great quantities of meat and drink.

The Normans soon became celebrated for the magnificence of their feasts, remarkable as they frequently were for the variety and costliness of their materials. William I. sent agents into different countries to collect the most admired and rare dishes for his tables. "By which means," says John of Salisbury, "this island, which is naturally productive of plenty and variety of provisions, was overflowed with everything that could inflame a luxurious appetite." He also says that he was present at an entertainment which lasted from three o'clock until midnight; at which luxuries were served up which had been brought from Constantinople, Babylon, Alexandria, Palestine, Tripoli, Syria and Phœnicia. It was especially at the festivities of Christmas, Easter, and Whitsuntide, that the splendid entertainments of the kings and great barons shone forth in all their magnificence. The clergy were by no means backward in partaking of these luxuries. The monks of St. Swithin's, at Winchester, made a formal complaint to Henry II. against their abbot, for having reduced their daily number of dishes from sixteen to ten. The monks of Canterbury had at least seventeen well seasoned dishes a day, besides a dessert. Disgusting species of entertainments, called glutton-masses, were celebrated five times in the year, (at a rather later period, however, than that to which we are now alluding,) at which all kinds of provision for eating and drinking were brought from the vicinity to the church, and the sacred edifice was for a while converted into a species of tavern, in which the most reprehensible excesses were committed—villages and congregations vying with each other in their outrage to religious purity.

During the thirteenth and fourteenth centuries the former abstinence of the Normans became changed into habits of immoderate extravagance, as manifested not only in the grand entertainments which accompanied the various exhibitions of chivalry, but also in their every-day life. This was in vain attempted to be restrained by sumptuary laws, by Edward II. The coronation feast of Edward III. cost 2835*l.* 18*s.* 2*d.*, equivalent to about 40,000*l.* of our money. At the installation of Ralph, Abbot of St. Augustine, six thousand guests were entertained, at a cost equal to more than 4000*l.* of our money, while at the induction of George Neville into the see of York three hundred tuns of ale, one hundred of wine, and a pipe of hippocras, were among the articles consumed. Matthew Paris says it would require a long treatise to describe the splendour and magnificence, and festivity, with which nuptials of the Earl of Cornwall and the daughter of the Earl of Provence were celebrated in London, in 1243; thirty thousand dishes were served at dinner.

The household expenses of Thomas, earl of Lancaster, for the year 1313, amounted to 109,635*l.* of our present money, and during this period no less than three hundred and seventy-one pipes of wine were consumed. The barons kept open house in the most prodigal style, all comers of condition being welcomed as well as their own vassals and followers. The produce of large quently thus entirely expended in this ruinous description of hospitality. Towards the end of the fourteenth century this profusion began to decline in some measure; the barons frequently dining in their parlours, with their families and friends, instead of in the public halls amid their numerous dependents—an innovation, which, however, subjected them to many reproaches. One of the most expensive parts of the royal entertainments of this period was, what were called *intermeats*. They consisted of representations of battles, sieges, &c., introduced between the courses for the amusement of the guests. The French excelled in these exhibitions. At a dinner given by Charles V. of France, to the Emperor, Charles IV., all the details of the siege of Jerusalem, by Godfrey de Bouillon, were represented. In ordinary cases, intermeats consisted of certain delicate dishes introduced between the regular courses.

The wars in which this country was engaged with France during the fifteenth century, as also the civil wars of the Roses, in which so large a portion of the principal nobility perished, would naturally interrupt and prevent the exhibition of the splendid hospitality of former ages. Henry VII., after his accession, both from the avaricious nature of his disposition, and from the politic jealousy he bore towards the nobility, held out no encouragement for a renewal of these festive scenes.

During the reign of Henry VIII. feasting was carried to a much greater extent. The ecclesiastics affected peculiar ceremony and state at their banquets. The entertainments of Cardinal Wolsey were pre-eminently distinguished for their magnificence and variety, and for the almost royal state with which they were accompanied. Stowe fairly gives up in despair the attempt to describe the luxuries of the period. Although this country, in the abundance which prevailed at these banquets, was unrivalled, yet was it surpassed in refinement by those of France and Italy. The Venetian ambassador coming to London during the reign of Mary, says that foreigners were astonished at the immense quantity of provisions which were consumed at the English court, although these were but a fourth part of what had been used in former reigns. During the reign of Elizabeth, the nobility kept up much of their old state and hospitality. The queen much objected to the large retinues of the aristocracy, some of whom were followed wherever they went by two hundred or three hundred retainers; she endeavoured to repress this habit by frequent proclamations; but the expenses of hospitality she did much to increase by her frequent progresses through her kingdom, during which she was provided with sumptuous entertainments by the nobility whom she visited. Leicester provided one for her at Kenilworth of extraordinary expense and splendour—the beer alone consumed amounting to three hundred and sixty-five hogsheads. Burleigh entertained her three times, each visit costing him from two to three thousand pounds: on these occasions his magnificent service of plate was displayed, the value of which independently of the fashion, according to Hume's calculation, was 42,000*l.* sterling.

In the place of the music, tumblers, and jesters of former times, a stately ceremony, and silence, and gravity prevailed at the banquets of the nobles in the time of Elizabeth. No less than fifty-six kinds of French wine are enumerated as being imported: and, from the quantity consumed, the charge against the English of excessive indulgence in the use of wine and intoxicating liquors seems to have been but too just.

The custom of drinking or pledging each other's health continued during the period we have now been reviewing. An affecting example will present itself to our reader's recollection in the unfortunate Mary Stuart, who, on the eve of her execution at Fotheringay, called for a cup of wine and pledged the healths of her attend-

ants who crowded and knelt around her. During the civil wars of the seventeenth century the royalist party, wishing in every possible manner to contrast themselves with the rigid puritans to whom they were opposed, gave way to the most licentious excesses in drinking; and the character of a man of pleasure was affected by them as a sure pledge of attachment to church and state: even when ruined by confiscations and sequestrations, they endeavoured, says Hume, to maintain an appearance of careless and social jollity. After the restoration of Charles II. debauchery of every description became triumphant, and at no time in our history did monarch and courtiers lead such dissolute and abandoned lives. At this epoch the custom of drinking healths was carried to a disgraceful excess, and that to persons of even an abandoned character. The young gallants carried their phrensy so far as sometimes to stab their arms, in order to pledge their favourites in their blood.

The term toast has been explained by the fact of toasted bread being frequently added to the liquors drank.

Many writers directed their pens against these excesses of the seventeenth century. Thomas Young, in a work entitled *England's Bane, or Description of Drunkenness*, gives a sad picture of the dreadful debauchery which prevailed at the time he wrote (1617). In a sermon preached by Robert Harris (1653), he laments that drunkenness was reduced to an art, with its set terms, the teaching of which had become a profession: he mentions "the strange sauciness of base vermine,—in tossing the name of his most excellent majesty in their foaming mouths." He recommends his readers to answer all those who wish to pledge them to drink under this pretext, in these words, "I will pray for the King's health, and drinke for mine owne." The celebrated Prynne inveighs bitterly, in his book called *Healthe's Sicknesse*, against the custom of toasting. He thus concludes his address to the Christian reader:—"The unfained well-wisher of thy spiritual and corporeal, though the opposer of thy pocular and pot-emptying health, Wm. Prynne."

After the fall of the Stuarts, toast-drinking became one of the means of expressing political opinions. Party-toasts have continued in vogue from that time even to the present day; and while it cannot be denied that several great political principles have been kept more prominently in view by the observance of the toasts which embodied their enunciation in some neat or appropriate sentiment; yet on the other hand have they too often led to much ill-feeling and discord by the party-feeling they have tended to create and foment.—J. C.

TO MUSIC.

Ah! wherefore but to heighten mirth,
And lend a keener zest to joy,
O Music! do the sons of earth
Thine aid employ?

Why falls not from thy tuneful string
Some anodyne for pain and grief?
Some spell to charm the ear, and bring
The heart relief?

But since to such, my heart, mine ears
Are dull;—with songs of mournful sweep,
Come, melt the thoughts that freeze my tears,
And let me weep!

O! thus, in tears, the saddest hour
That darkens o'er the sons of earth,
More homage pays to Music's power
Than years of mirth.—J. S. B.

When pride rules in the heart, it necessarily hardens it, because it excludes divine grace, and shuts the ear, not only to all admonition both of God and of man, but even to the voice of our own interest.—Wogan.

THOMAS SUTTON,

FOUNDER OF THE CHARTER-HOUSE

Thomas Sutton was one of the ancient family of the Suttons, in Lincolnshire. His father resided in the parish of St. Swithin, in the city of Lincoln, and was steward to the courts there.

His mother was descended from the honourable family of the Stapletons, in Yorkshire. The year 1532 is cited as the date of his birth. He appears to have been educated at Eton, and thence removed to St. John's College, Cambridge, which he left without taking a degree. He entered as a student in Lincoln's Inn, travelled on the continent, and did not return till about 1562, when in consequence of the death of his father he became possessed of considerable property.

Sutton was one of the Duke of Norfolk's retainers, and afterwards secretary to the Earl of Warwick, and "in consideration of trewe and faitheful servyce" he was rewarded by an annuity of 3*l.* 6*s.* 8*d.* He was also appointed master of the ordnance at Berwick, and afterwards master-general of the ordnance in the north.

He was (says Fuller) somewhat of pay-master by his place; much money therefore passing through, some did lawfully stick on his fingers, which became the bottom of his future estate.

He is said to have behaved with much gallantry and courage at the siege of Edinburgh Castle. His military services were rewarded by the crown by the presentation of the manors of Gateshead and Wickham, near Newcastle upon Tyne, held by a long lease under the Bishop of Durham and the crown. In these demesnes he was so fortunate as to discover several rich veins of coal, which he worked with so much success that in the year 1580 he is said to have been worth 50,000*l.* About this time, in consequence of some misunderstanding with some persons of consequence in the north of England, he was induced to settle in London, where such a notion of his wealth had preceded him as to encourage the report that his purse was better filled than the queen's exchequer. Indeed, he is said to have brought two horses laden with money to London. No wonder highway robbers were plentiful when such booties as these were to be met with. On his arrival he was made a freeman of the City and became a liveryman of the

company of Girdlers." His fortune was also greatly augmented by a marriage with Elizabeth, daughter of John Gardiner, a gentleman of Buckinghamshire. This lady continued during twenty years "to promote the goodness of Mr. Sutton, and to forward his benevolent deeds."

About the time of his marriage Sutton became a merchant, and with a considerable capital, managed with skill and prudence, it is no wonder that he soon became extremely rich: it is also one of the most pleasing features in his character, that his integrity was vouched for even by his creditors. A letter to him from Sir John Skynner, of Castle Camps, dated June, 1607, affords one among many, of such curious testimonies:—

Mr. Sutton, I am more ashamed than afraid to come to you, being in your debt 200*l.* for myselfe, and 50*l.* for Sir Jo. Skinner, and able to pay neyther till Camps be sold. With moche suyt and no lytle charge I procured the act of parliament to passe, and that in so good a fashyon that all encombrances wear wypte of, saving Wipes, which ye excepted. My hope was then that you shold buy yt, who I was sewr wold deal justly and pay trewely, and not wysh to buy yt undersolde.

Fuller, in his *Worthies*, prefaces an anecdote of Sutton with this remark:—

Such who charge him with purblindness in his soul, looking too close on the earth, do themselves acquit him from oppression; that though *tenax*, he was not *rapax*,—not guilty of covetousness but parsimony.

Indeed, there was a merchant, his comrade, whose name I will conceal, (except the great estate he left doth discover it,) with whom he had company in common; but their charges were several to themselves. When his friend in in travell called for *two* faggots, Mr. Sutton called for *one;* when his friend for *half-a-pint* of wine, Mr. Sutton for a *gill*, —underspending him a moiety. At last, Mr. Sutton, hearing of his friend's death, and that he left but fifty thousand pounds estate, 'I thought,' (said he,) 'he would dye no rich man, who made such needless expences.' Indeed, Mr. Sutton's estate *doubled* his; and he bestowed it all on Charter House, or Sutton's Hospitall. This is the masterpiece of protestant English charity; designed in his life; compleated after his death; begun, continued, and finished, with buildings and endowments, *sine causâ socid*, solely at his charges; wherein Mr. Sutton appears peerless in all Christendom, on an equal standart and valuation of revenue.

Sutton appears to have served his country quite as effectually in his civil as in his military capacity. In consequence of certain commercial manœuvres suggested and conducted by him, he prevented Philip III., of Spain, from being supplied, as he confidently expected, by the bank of Genoa, with the means of equipping the Armada then preparing to invade England; and thus a delay in the completion of that armament was occasioned, which enabled Queen Elizabeth to prepare every possible force to resist it. Sutton, also, having received letters of marque, fitted out a bark, which he commanded in person, and succeeded in capturing a Spanish merchant vessel, of the value of 20,000*l.*

But in the midst of all his successes he was distinguished among those "whom," (as Pennant says,) "Heaven hath blessed with the luxurious power of doing good." He was accustomed in years of scarcity to buy large quantities of grain, and cause it to be retailed at lower prices to his poor neighbours. The year 1595, in particular, was marked with great distress, on account of the failure of the harvest, and the price of corn became so exorbitant that the poor people were entirely without bread. During thirty successive weeks of this year Sutton supplied the poor with the produce of his estates. The order to his steward for this most charitable purpose is preserved in his own hand-writing among the records of the Charter-house.

His loyalty also shone as conspicuous as his charity. In the year 1594 he executed a will by which he amply provided for his wife, and then,

as a proof of his true and faithful hearte borne to his dread sovereign Queen Elizabeth he bequeathed her Majesty two thousand pounds in recompense of his oversights, careless dealing, and forgetfulness in her service, beseeching her to stand a good and gracious lady to his poor wife.

The various manors and estates which afford so firm a support to the Charter-House were purchased by Sutton one by one from persons of quality, whose lands and houses were more at command than ready money. But his money was not always so profitably invested, as appears from the piles of bonds found among his papers, and the letters of ungrateful debtors, who seem to have considered their benefactor as a mere dotard, ready to throw his gold to avert the threats of heaven's vengeance, which they lavish on him in case of denial. There is, however, abundant proof of the high estimation in which he was most generally held, as well as matter curiously illustrative of the times in the applications for money and the various effects produced on different persons by his loans or gifts as the case of the borrower might be. In the list of borrowers Queen Elizabeth stands first for 100*l.* for one year, in the 39th of her majesty's reign. The Earl of Sussex was in the habit of borrowing freely, and even entreating for 50*l.* at a time, for which he commanded the keeper of his park "to furnish Mr. Sutton, during life, with a buck in summer, and a doe in winter." The Countess of Cumberland, writing to Sutton about her money affairs, says—

I wholy relyed upon you, presumyng partly upon your owne promyse, as comying from your owne kynde proffer thereof, and partly upon that former and accustomed kyndnes, and good parts of frendship wh. for hir sake that is nowe gone you seemed to have borne to me.

This last allusion seems to refer to Sutton's deceased wife. In other letters one prays for assistance on his marriage; a second to pay her dead brother's debts, in order to save his body from arrest; a third offers to shed all his blood for a return to his kindness; a shipwrecked sufferer solicits relief in Latin. He was beset with verse as well as with prose. One Richard Williams wrote verses "in twoo severall sortes, on the letters of his worshipful name." Another wrote a "prayer for his worship in the termes of a gardener," a specimen of which may amuse.

Plante, Lorde, in hym the tree of Godlie life,
Hedge him aboute with thy stronge fence of Faithe,
And if it thee please use eke thie proyninge knife,
Leaste, that O Lorde, as a good gardyner saythe,
If suckers drawe the sappe from bowes on hie,
The toppe of tree in time perhaps may die.

The following letter contains a pleasing tribute to Mr. Sutton's worth.

Right wll., I am a musitian, who formerly have brought upp noblemen's daughters, as well knights' as gentlemen's daughters, in the arte of musicke; who through a long continuance of syckness (my schollers wch. were my onlye staye and sole mayntenance beinge long sithence departed into the countrye and not yet returnd,) am for wante of schollers brought into such pinchinge penurye, as that I am not able to protect myself, much lesse my wyfe and children. And, hearinge of the generouse reporte yor. wrps. worthinesse and worthye disposition towardes distressed gentlemen, to schollers, and men of arte, chose rather to set my sorrowes to sale to so wll. a gent as yor. self, beinge endued wth. wisdome, mercye, and charitable commiseration, then to break foorth my miseries to any inferior person. Thus cravinge yor. wrps. patience for this my bold attempte, not wthout blushinge cheekes, I cease: By nowe the unworthy chief gent now lyving of the name, John Hardinge, 1611.

There are many proofs that the declining years of Sutton were made uneasy, not so much by vexatious letters from ungrateful debtors, as by certain foul reports that he had not come honestly by some of his estates. Sir John Harrington was one of his tormentors; he not only abused the confidence reposed in him, but placed Mr. Sutton in an unpleasant and mortifying situation by promulgating a report that the purchase of Castle Camps,

in Cambridgeshire, was accompanied by some improper and unfair conduct towards the vendor, Sir John Skynner, one of whose letters we have already quoted. This report was legally investigated, with the conclusion (proofs of which yet remain) that the whole affair had been conducted with that integrity and honour which distinguished all Mr. Sutton's dealings. This man, Harrington, also basely endeavoured to secure Sutton's fortune to the Duke of York, in order to make his own court to James I. He holds out the bait of a peerage for such a legacy, but Sutton, with characteristic honesty and courage, addresses the following letter to the Lord Chancellor Ellesmere, and to the Lord Treasurer Salisbury:—

May it please your lordships, I understand that his majesty is possessed by Sir John Harrington, or by some other by his means, that I intend to make his highness's son, the Duke of Yorke, my heire; whereupon, as it is reported, his highness proposeth to bestowe the honour of a baron on me, whereof as I am most unworthy, so I vowe to God and your lordships, I never harboured the least thought, or proude desire of any such matter. My mynde, in my younger times, hath been ever free from ambition, and now I am going to my grave, to gape for such a thing were mere dotage in me, so unworthie allso, as I confess unto your lordships; that this knight hath been often tampering with me to that purpose, to enterteyne honour, and to make the noble duke my heire is true, to whom I made that answer, as had he either witte or honestie, (with reverence to your lordships be it spoken,) he never would have engaged himself in this business so egregiously to delude his majesty and wrong me. My humble suit unto your lordships is, that, considering this occasion hath brought me into question and in hazard of his highness's displeasure, having never given Sir John Harrington, nor any man lyvinge, either promise or semblance to do any such act, but upon his motions grew into utter dislike with him for such idle speeche, your lordships will vouchsafe me this favour to informe his highnesse aright howe things have proceeded directly without my privitie; and withall that my trust is in his gracious disposition, not to conceite the worst of me for other men's follies; but that I may have free liberty with his princely leave, wherein I rest most assured, to dispose of myne owne, as other his majesties loyal subjects. And so most humbly recommending my dutie and service to your lordships, for the increase of whose honours and happiness I shall ever pray, I rest, your lordships' poor beadsman, THOMAS SUTTON.

On the 17th of June, 1602, Sutton sustained the loss of the most precious of all earthly treasures—a faithful and affectionate wife. This lady left a character for superior sense and discretion. She is described as a person devotedly attentive to the duties of her station, and whose charities were so conspicuous that her house appeared "like an open hospital." In a letter to her husband, written about a month before her death, she says:—

There is in all of the wheate dressed xv. quters 3 bushells since you went, and now they are about yor. best wheate: good Mr. Sutton, I beseeche you remember the firste for the poore folkes, and God will reward you.

After her death Mr. Sutton reformed his house, and "became frugal that he might be the more magnificent to many."

When Mr. Sutton had finally determined on the situation of his charity, he began in earnest to secure it by those legal barriers which have proved its safe-guard, even to the present time. That he had some expense as well as trouble in effecting this part of his intentions there are existing documents to prove; and he had no sooner taken possession, when the Lady Berckley solicited permission to reside in the Charter-House during the summer of 1611, and to bring with her ten servants, stating as a reason for this request that her house in Barbican was too close and unhealthy for the season.

The benevolent intentions of Sutton with respect to the Charter-House had scarcely been carried into effect, when this worthy man received his final summons. He died at Hackney, at the age of seventy-nine, and in accordance with the manners of the times his body was embalmed, for which operation Edward Phillips, apothecary, received 40*l.* 4*s.* 8*d.* The bowels were buried in the church of the parish where Sutton died; but the body, enclosed in a leaden coffin, remained at his residence until the roads were in a fit state to admit of the funeral procession. On the 28th of May, 1612, the interment took place with great pomp, under the direction of Mr. Camden, Clarencieux king-at-arms, in Christ Church, where the body remained till the chapel at the Charter-House could be prepared to receive it. This ceremony was attended by persons of the highest rank, together with a long train of knights and gentlemen. It is stated that no less than six thousand persons followed the corpse, and that the procession occupied six hours in moving from the house of Dr. Lawes, in Paternoster Row, to Christ Church. On the 12th of December, 1614, the anniversary of Mr. Sutton's death, the body was removed on the shoulders of his poor pensioners, and finally deposited in a vault on the north side of the chapel at the Charter-House, under the tomb erected to his memory by Mr. Nicholas Stone.

THAT man must daily wiser grow,
Whose search is bent himself to know:
Impartially he weighs his scope,
And on firm reason founds his hope;
He tries his strength before the race,
And never seeks his own disgrace;
He knows the compass, sail, and oar,
Or never launches from the shore;
Before he builds computes the cost,
And in no proud pursuit is lost.
He learns the bounds of human sense,
And safely walks within the fence.
Thus, conscious of his own defect,
Are pride and self-importance checked.—GAY.

WE went a little out of our road to visit the ruins of a city called by the natives Kohrasar. I found the ruins to be more extensive and remarkable than I had expected. The walls of the city were built of good square hewn stones (basalt), like those of Diyarbekr, and were defended by square and round towers. The towers on the north side preserve about half their original height, but on the other side are more ruinous: the space within the walls is nearly square, and the extent of any one of the sides from six hundred to seven hundred yards; the whole of this space is filled up with ruins of houses, except towards the east, where there is a large mound, apparently once a building of some extent. The houses were constructed of hewn stone, with semicircular arches and intervening masonry: many of these arches are still standing. I found no inscription, nor Babylonian bricks, but by no means explored all the ruins, which cover about a mile of ground in and outside of the walls. By far the most remarkable remnant connected with this ancient place is the burial-ground without the walls, which, with respect to its construction and arrangement, is the most perfect necropolis that I have ever seen. These tombs were in part underground, laid out in regular rows, of which there were about twenty, each containing nearly one hundred tombs. Each was a separate and distinct mausoleum, built of massive hewn stones, forming a chamber with three arcades, one fronting the entrance and one on each side; each of these arcades was divided into two parts, by a huge single slab of basalt, so as to contain one coffin above and one below, or six in the same sepulchre. The door itself consisted of another heavy mass of basalt, swung upon hinges cut out of the rock, and received into circular holes in the building. Although many of them were quite perfect, it required a man's strength to move them; and as a portal was thus left to the houses of the dead, it appears as if, as in Egypt, the inhabitants had been in the practice of visiting them; and in the interior there was space for two or three persons to walk about in. Amidst these are the more lofty ruins, apparently of churches; one of these was tolerably perfect: of another, the walls only rose like pillars from the plain.

This ancient site appears to correspond to the Sinna of Ptolemy, and the Sina or Sinna of Assemanni, which was a Chaldean metropolis situated between Edessa and Amida. The crosses sculptured upon the portals of the tombs, and the architecture of the churches, attested that it had been a Christian city.—AINSWORTH'S *Researches in Asia Minor*.

SPARE MINUTES.

RESOLVED MEDITATIONS AND PREMEDITATED RESOLUTIONS.

WHEN a storm drives me to shelter me under a tree, I find that if the storm be little, the tree defends me; but if the storm be great the tree not only not defends me, but poureth on me that wet which itself had received, and so maketh me much wetter. Hence instructed, I resolve that if improvidently I fall into some small danger of the laws, I will presume to seek shelter under the arm of some potent friend; but if the tempest of my trouble be too potent for my friend, I will rather bear all myself, than involve my friend in the danger. It would be bad enough for me to be drenched with, or distressed by the storm of the law's anger only: it would be worse to be drowned with the anger of my storming friend also. My conscience of my ill-deserving towards the laws would enforce a patience; my remembrance of my well-deserving to my friend would make the just addition of his anger intolerable.

CONTENT is the mark we all aim at, the chief good and top of felicity, to which all men's actions strive to ascend: but it is solely proper to God's wisdom to engross all true content into his own hand, that he may sell it to saints by retail, and enforce all men to buy it of him, or want it. Hence is it, that a godly man, in his mean estate, enjoys more content in God than a king or emperor in his earthly glory and magnificence. I will then strive to purchase me a patent of content from him that hath the monopoly thereof; and then, if I have little in estate, I shall have much in content; godliness shall be my great riches, whilst I am contented with what I have.

POPULAR applause, and vulgar opinion, may blow up and mount upward the bubble of a vain-glorious mind, till it burst in the air, and vanish; but a wise man builds his glory on the strong foundation of virtue, without expecting or respecting the slender props of vulgar opinion. I will not negleot what every one thinks of me; for that were impudent dissoluteness. I will not make it my common care to hearken how I am cared for of the common sort, and be over-solicitous what every one speaks of me; for that were a toilsome vanity. I may do well and hear ill, and that's a kingly happiness: I may do ill and hear well, and that's an hypocrite's best felicity. My actions shall make me harmony in my heart's inner chamber: I will not borrow the voices of the vulgar to sweeten my music.

THE rancour of malice is the true nature of the devil, and the soul possessed therewith is his dearest darling. For where envy, hate, and revenge take up the whole heart, there God hath no room at all left to be in all his thoughts. I may meet a mad man, and avoid him; I may move a choleric man, and pacify him; I may cross a furious drunkard, and shun him; but a malicious man is more dangerous, implacable, and inevitable, than they all. Malice omits no occasion to do mischief: and if it miss thy body and substance, it prosecutes thy shadow. "My soul, come not thou into their secrets; unto their assembly, mine honour, be not thou united." I must not turn anger out of my nature, I must not turn my nature into anger; I must give place to wrath, but not a resting-place, but a place to let it pass by, that I may let go displeasure. I may give entrance to anger on just cause, I may not give it entertainment on any cause, till it sour with the leaven of malice. I must be angry with sin, but I must be angry and sin not.

WHEN I plant a choice flower in a fertile soil, I see nature presently to thrust up with it, the stinging nettle, the stinking hemlock, the drowsy poppy, and many such noisome weeds, which will either choke my plant with excluding the sun, or divert its nourishment to themselves: but if I weed but these at first, my flower thrives to its goodness and glory. This is also my case when I endeavour to plant grace in the fertile soil of a good wit: for luxurious nature thrusts up with it, either stinging wrath, or stinking wantonness, or drowsy sloth, or some other vices, which rob my plant of its desired flourishing: but these being first plucked up, the good wit produceth, in its time, the fair flower of virtue. I will not therefore think the best wits, as they are wits fittest to make the best men, but as they are the best purged best wits. The ground of their goodness is not the goodness of their wit's ground, but the good weeding and cleansing. I must first eschew the evil, ere I can do good; supplant vices, ere I can implant virtue.

WHEN I see the husbandman well contented with the cold of frost and snow in the winter, because though it chilleth the ground, yet it killeth the charlock; though it check the wheat somewhat in growing, yet it choketh the weeds from growing at all; why should I be moved at the winter of affliction? Why vexed at the quaking fit of a quartan ague? Why offended at the cold change of affection in my summer friends? If as they seem bitter to my mind and body, they prove healthful to my bettered soul: if my wants kill my wantonness, my poverty check my pride, my disrespected slighting quell my ambition and vain-glory, and every weed of vice being thus choked by affliction's winter, my soul may grow fruitful for heaven's harvest; let my winter be bitter, so that I be gathered with the good corn at reaping time into the Lord's barn.

As oft as I hear the Robin-redbreast chant it as cheerfully in September, the beginning of winter, as in March, the approach of the summer, why should not we, (think I) give as cheerful entertainment to the hoary-frosty hairs of our age's winter, as to the primroses of our youth's spring? Why not to the declining sun in adversity, as (like Persians) to the rising sun of prosperity? I am sent to the ant, to learn industry: to the dove, to learn innocence; to the serpent to learn wisdom; and why not to this bird, to learn equanimity and patience; and to keep the same tenour of my mind's quietness, as well at the approach of calamity's winter, as of the spring of happiness? And, since the Roman's constancy is so commended, who changed not his countenance with his changed fortunes, why should not I with a Christian resolution, hold a steady course in all weathers, and though I be forced with cross-winds to shift my sails, and catch at side winds, yet skilfully to steer, and keep on my course, by the *cape of good hope*, till I arrive at the haven of eternal happiness?

THE same water which being liquid is penetrated with a horse-hair, will bear the horse himself when it is hard-frozen. I muse not then that those precepts and threats of God's judgments enter not into the hardened hearts of some old men, frozen by the practice of sin, which pierce and penetrate deep into the tender hearts and melting consciences of younger folks, thawed with the warmth of God's fear. Hence see I the cause why the sword of the Word, so sharp that it serveth in some to divide the joints and marrow, in others, glanceth or reboundeth without dent or wound, from their crystal, frozen, and adamantine hearts. I cannot promise myself to be free from sin, I were then no man: but I will purpose in myself to be free from hardness of heart; by custom and continuance in sin, I may err in my way, I will not persist and go on in my errors, till I cannot return again into my way. I may stumble, I may fall, but I will not lie still when I am fallen.

WHEN I see two game cocks, at first sight, without premeditated malice, fight desperately and furiously, the one to maintain the injury offered, the other to revenge the injury received by the first blow, and to maintain this quarrel not only dye the pit with their blood, but die in the pit with their mutual bloody wounds, methinks I see the success of those duellers of our time, which being ambitious of Achilles' praise, desperately and furiously adventure their lives here, and endanger their souls hereafter, only for the vain terms of false honour. I will not say but that, being flesh and blood I may be careless of my flesh and blood to revenge injurious indignities offered me: yet since as a tenant my soul must answer her landlord for reparations of the house she dwells in, and I have no warrant of God or man for such revenge, I will not kill my own soul to kill another man's body. I will not pull the house of my body on my soul's head in a fury, that God may make them both fuel for the fury of hell-fire.

[ARTHUR WARWICK, 1637.]

. . . . . Ages pass away,
Thrones fall, and nations disappear, and worlds
Grow old and go to wreck; the soul alone
Endures, and what she chooseth for herself,
The arbiter of her own destiny,
That only shall be permanent.—SOUTHEY.

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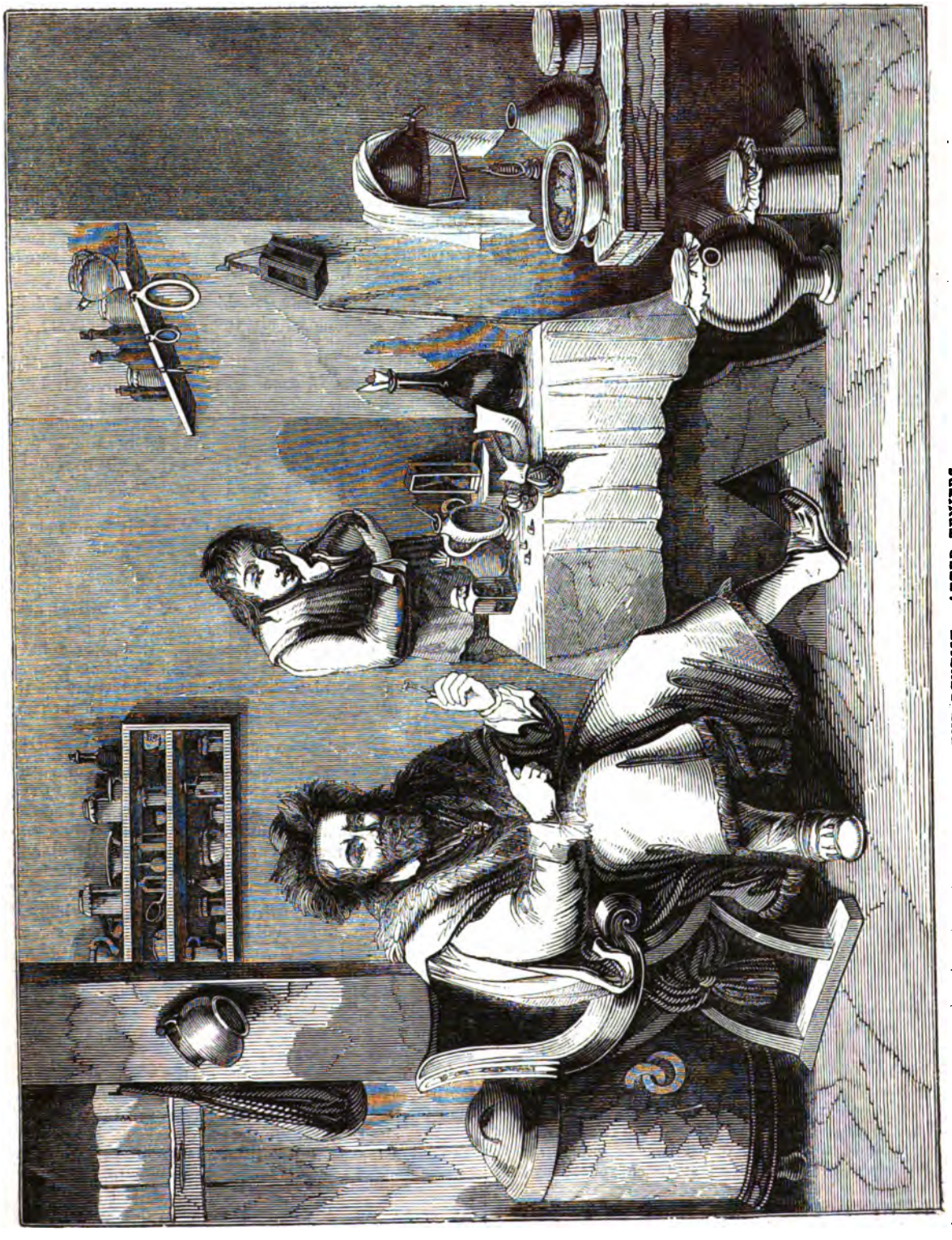

THE DENTIST. AFTER TENIERS

TENIERS AND HIS WORKS.
II.

THE variety of style and manner, observable in a large collection of pictures, forms a pleasing diversity to the eye, and an agreeable amusement to the connoisseur. Every painter of genius, when pursuing the study of the art without an instructor, gradually acquires a method of his own, and one best suited to delineate the impressions which nature makes on his mind; in proportion to the rapidity of his ideas, so will follow the movement of his hand; and the operations will either be free and spirited, or neat and laborious. If, however, his style be derived from tuition, or a school, it then partakes of the peculiarities of the master or school from whence it owes its origin; these will be manifested, either in the drawing or composition, colour, or handling; and by one or more of these signs a connoisseur will define the school to which a painter belongs when he may be quite at a loss to name the painter. Thus Teniers, being a pupil of his father, naturally imitated his manner; but possessing a very superior genius, he gradually abandoned the brown and heavy tones of colour used by him, and adopted those of a clear and silvery kind. His handling is also infinitely more spirited and free than that of his instructor. He could doubtless have invented a style of his own had he been so disposed; but he chose rather to improve upon the one he had attained, as he found it so well suited to express with facility whatever he desired to represent. No painter ever exercised the pencil with greater freedom and address—a few hours sufficing for the production of a picture containing several figures perfectly formed and full of animation. With these capabilities, aided by a lively imagination, he was enabled to execute an incredible number of pictures, many of which contain from twenty to one hundred figures, and a few of his productions have triple that number*.

Under the patronage of royalty, the name of Teniers stood high in the world, and wealth poured in upon him abundantly. His residence at the village of Perke, or Perck, situated between Malines and Vilvorde, at the house known as the Château with three Towers, was the constant resort of distinguished company; and no stranger of any consideration arrived in Flanders without visiting the entertaining artist. Here also Prince John of Austria condescended to lay aside the princely etiquette of the German Court, became his scholar, and lived with him on terms of the utmost familiarity.

In this neighbourhood Teniers studied his village feasts and fairs, and here he painted the greater number of his best works. He studied nature in every shape with a most curious and critical observation, and as he generally composed his subjects from persons in low stations, he accustomed himself to frequent their meetings at sports, feasts, and pastimes; and thus had frequent opportunity of remarking the simplicity of their manners, and the various actions, attitudes, characters, and passions of every age and sex.

By long practice the pursuit of his art had become an agreeable amusement, which he could follow with the same freedom and success in the midst of company as when alone. Some idea may be formed of the extraordinary number of his pictures by a remark of his own, "that it would require a gallery two leagues in length to contain all his pictures."

Continually surrounded by friends and in the possession of ample means to support a handsome establishment, his life glided smoothly along in the delightful occupation of the pencil, varied by the enjoyment of domestic pleasures. He died at the advanced age of eighty.

Teniers was twice married. His first wife was Anne Breughel, daughter of the artist of that name (the softness of whose style procured for him the surname of Velvet) and the adopted daughter of Rubens; his second wife was Isabella de Frene, daughter of a counsellor of Brabant. He had children by his first marriage, but not one of them followed his father's profession.

One of the last works of Teniers is stated to have been the portrait of a lawyer, represented sitting in his study surrounded with books, parchment, and papers. When engaged on this picture he observed jokingly to his sitter, that he had all his life used ivory black in painting, but on this occasion he had substituted his last tooth which had just fallen out.

The great charm which pervades the works of Teniers arises, first, from their truth, and secondly, from the great skill with which he worked.

It is true (says Cunningham) that some artists, and Lawrence amongst them, excluded his sketches from their collections, and refused to rank him with those distinguished men whom Academies consented to call The Masters; but as Pope said of his Homer, in comparison to that of Tickell, if he had not the court he had the mob on his side. The honours withheld from him by professors had no influence on the world, and his name stands deservedly high with all those who admire original talent and variety of character. He may be safely classed with those who have contributed largely to the amusement, nay, to the happiness of mankind.

According to Pilkington, his pencil is free and delicate; the touching of his trees is light and firm; his skies admirable, and though not much varied yet clear and brilliant. The expression of his figures, whether mirthful or grave, in anger or in good humour, is strongly marked, striking, and natural. He possessed the art of relieving his lights by other lights without employing deep shadows, and yet produced the intended effect in a very surprising manner. "There is," says Bryan, "a silvery charm in the colouring of his best pictures which is peculiar to himself."

Teniers has been accused of making his figures short and clumsy; but he cared little, as Cunningham remarks, for the elegance of his figures: in truth, much of the character which he desired to depict lay in the squat shapes and ludicrous proportions of his rustics; academic forms and the graces of outline would have been wasted on such clods of the valley—nay, would have lessened the jollity and rustic conviviality of his groups. Had he changed his Dutch-built boors into Adonises he would have quenched all mirth, and extinguished all humour.

The small landscapes of Teniers please by their light and airy effect, and by the animating charm of rustic happiness depicted in the enjoyments of the peasantry; but he did not confine himself to the scenes familiar to the peasant and the artisan. His genius led him into almost every branch of art:—his conversational and musical parties of persons of distinction show that he was well acquainted with the customs and manners of polished society—and whenever he represented himself and his family in his village feasts, &c., each person was designated by a suitable characteristic of gentility.

The pictures of Teniers are very numerous in this country, and also in Holland, in the houses of the nobility and gentry. The public collections were robbed by the French under Napoleon, who selected a large number and carried them to Paris.

The most perfect catalogue of the works of Teniers, is that given by Mr. Smith in the work before cited. This gentleman has taken considerable pains to ascertain, identify, and authenticate the early works of the younger Teniers. He finds that they invariably partake of a brown tone of colour; and such appear to have been painted previously to his thirtieth year, about which period he gradually quitted those predominant brown tints, and adopted a much more clear, and what is termed *silvery* manner of colouring. Many of his finest works

* SMITH, *Catalogue of Dutch Painters*.

are dated 1647. In his latter time his handling became feeble and tremulous, and his colouring less transparent, with a tendency to a yellow brown. The vehicle or medium used by him in painting was evidently of the same kind as that with which Rubens, Breughel, and other artists of that school, worked; and, whatever this medium may have been, it is plain that it possessed two very important qualities, namely, of giving transparency to the colours, and being a convenient texture for its application; for nothing short of these, in conjunction with a perfect knowledge of the principles of the art, could have enabled him to produce so incredible a number of pictures.

Teniers is said to have rendered great service to the landscape painters of his time in decorating their works with his admirable figures. He also executed a number of etchings:—they are in a slight but spirited style, and are usually marked with the cypher as are those of the elder Teniers, which renders it difficult to identify their prints.

Teniers had a younger brother named Abraham, whom he instructed in the art. He painted Flemish festivals in the style of his brother, and though his pictures are very inferior, both in colouring and execution, yet, from the similarity of subject, they are sometimes mistaken by the inexperienced for the productions of his brother.

HOWARD THE PHILANTHROPIST.

"I CANNOT name John Howard," exclaimed Mr. Burke, "without remarking, that his labours and writings have done much to open the eyes and hearts of mankind. He has visited all Europe,—not to survey the sumptuousness of palaces, or the stateliness of temples; not to make accurate measurements of the remains of ancient grandeur, not to form a scale of the curiosity of modern art; not to collect medals or collate manuscripts;—but to dive into the depths of dungeons; to plunge into the infection of hospitals; to survey the mansions of sorrow and pain; to take the gauge and dimensions of misery, depression, and contempt; to remember the forgotten, to attend to the neglected, and to compare and collate the distresses of all men in all countries. His plan is original, and it is as full of genius as it is of humanity. It was a voyage of discovery; a circumnavigation of charity. Already the benefit of his labour is felt more or less in every country; I hope he will anticipate his final reward, by seeing all its effects fully realised in his own. He will receive, not by retail, but in gross, the reward of those who visit the prisoner; and he has so forestalled and monopolized this branch of charity, that there will be, I trust, little room to merit by such acts of benevolence hereafter."

John Howard, the subject of this well-deserved eulogy, was born at Hackney, in the year 1726. His father, who kept a carpet warehouse near Smithfield, died whilst he was an infant, and his guardians bound him apprentice to Mr. Newman, a wholesale grocer in the city of London. His constitution, however, was delicate, and having an aversion to trade, he purchased his indentures, and made a tour in France and Italy.

In the year 1756 he embarked for Lisbon, in order to view the ravages committed by the earthquake in that city*. On her passage, the Hanover frigate, in which he sailed, was taken by a French privateer; and his sufferings during his confinement in France strongly awakened his sympathies for prisoners in general. "Before we reached Brest," he says in his work *On Prisons*, "I suffered the extremity of thirst, not having for above forty hours one drop of water, and hardly a morsel of food. In the castle of Brest I lay six nights upon straw." Seeing how cruelly they were used there and at Morlaix, he entered into correspondence with the English prisoners, and learned that they were treated with such barbarity that many hundreds had perished, and that thirty-six were buried in a hole at Dinant in one day. On his return to England, he represented these circumstances to the commissioners of sick and wounded seamen; remonstrances were made in consequence to the French government, and our sailors had redress.

* See *Saturday Magazine*, Vol. II., p. 123.

Being appointed high sheriff of Bedfordshire, the duties his office brought the distress of prisoners more immediately under his notice. He constantly visited the county jail, where he discovered great abuses, and ascertained the sources of much distress and suffering, which he exerted himself to remove. In this benevolent spirit, he extended his visits to the principal prisons in England, the further he proceeded the more shocking were the scenes presented to his view. One grand object with him in this tour of humanity was to put a stop to that infectious distemper the jail-fever, which raged in some places like the plague, and being communicated from the prisons to the courts of justice, proved fatal to judges, magistrates, lawyers, and persons attending the trials, as well as to the families of discharged prisoners. Another object with him was to procure the immediate release of prisoners, who, after being acquitted, were frequently detained, because they were unable to pay the accustomed fees. But his principal object was to introduce a thorough reform of morals into our prisons, where he found the most flagrant vices prevailing to such a degree that those who were discharged from them became more injurious to society than they had been before their commital.

In the prosecution of these humane objects Mr. Howard spared no pains or expense, and cheerfully exposed himself to inconvenience and hazard, from that malignant distemper of which he saw many dying in loathsome places, into which few would venture. "I have frequently been asked," he says, "what precautions I used to preserve myself from infection in the prisons and the hospitals which I visited. I here answer, next to the goodness and mercy of the Author of my being, temperance and cleanliness are my preservatives. Trusting in divine Providence, and believing myself to be in the way of my duty, I visit the most noxious cells, and while thus employed I fear no evil."

He had the satisfaction to see his humane endeavours crowned with success, particularly in regard to the healthiness of prisons, some of which were rebuilt under his inspection. Through his interference better provision was made for the instruction of prisoners by the introduction of Bibles and pious books into their cells, and a more constant attendance of clergymen. But to render his efforts for the reformation of criminals more effective, he determined to visit foreign countries, in order to see the plans there adopted, and in the hope of collecting information which might be useful in his own. For this purpose he extended his travels to every country in Europe, not excepting Turkey, bestowing commendation, advice, or reproof, as he saw occasion, and speaking his mind even to crowned heads with a freedom to which they were not accustomed.

His voyage to the Levant was undertaken with a view to collect information concerning the best methods of preventing the spreading of the plague, which he intended to apply to other infectious disorders. In the execution of this design, he was continually exposing himself to danger, and actually caught the plague; but, as he piously remarks, "That merciful Providence which had hitherto preserved him, was pleased to extend his protection to him in this journey also, and to bring him home once more in safety."

Not content with what he had already done, he announced in his *Account of Lazarettos* his intention of revisiting Russia and Turkey, and extending his tour in the East. "I am not insensible," says he, "of the dangers that must attend such a journey. Trusting, however, in the protection of that kind Providence which has hitherto preserved me, I calmly and cheerfully commit myself to his disposal of unerring wisdom. Should it please God to cut off my life in the prosecution of this design, let not my conduct be uncandidly imputed to rashness or enthusiasm, but to a serious deliberate conviction that I am pursuing the path of duty, and to a sincere desire of being made an instrument of more extensive usefulness to my fellow-creatures, than could be expected from the narrower circle of a retired life."

In this tour it "did please God to cut off his life;" for in visiting an hospital at Cherson, a town of Russia, then recently founded, on the Black Sea, he caught a malignant fever, which carried him off in January 1790, after a illness of about twelve days. His remains were buried in the garden of a villa in the neighbourhood, and a monument, erected at the national expense in St. Paul's, commemorates the virtues of one who devoted his time and fortune, and finally sacrificed his life, in the pursuits of humanity.

LETTERS TO THE READER

No. II.

MY DEAR READER,

I OFTEN find it an instructive exercise to compare the slow and interrupted civilization of early ages with the steady and progressive improvement of later times. Early civilization was slow while yet the human race was but a few generations older than the individual, and consequently there had not been time for much scientific research: it was also interrupted, because several attempts at universal empire had confined it to a few centres of political power, with the rise and fall of which it consequently fluctuated. The civilization of modern days, on the contrary, has been steady and progressive, because the discoveries of former ages have served as stepping-stones to further facts. The art of printing has preserved and spread abroad the results of knowledge, and the division of the world into many separate nations has multiplied the sources of improvement, each exciting the other with a laudable emulation. But we, who start from our advanced position, must take care not to think too highly of ourselves, when we exult in the prospects of our species. Having had the advantage of the collective discoveries and revelations which were, at best, but partially known to those who preceded us, what have we, as individuals, done towards preparing society for a still more perfect civilization? There are, I fear, but few that devote their lives to the extension and application of the public property in knowledge and religion, and thus become the "moral pioneers" of after-ages. One among that limited number was Howard the philanthropist, to whose character we shall not do justice without separating it from the history of his age. At the time when that great man directed attention to the neglected state of the prisons of the world, the science of the public health yet formed but a small part of medical science in general: the art of *preventing disease* had not assumed, as at the present time, an equal importance with the *healing art;* it was from his own energies and sympathies that he drew strength to go forth upon his mission of love and knowledge to suffering humanity.

Shall we admire his purpose, and fail to copy his example? Recent official reports tell us that "*there is more filth, worse physical suffering and moral disorder than Howard describes as affecting the prisoners, to be found amongst the cellar population of the working people in Liverpool, Manchester, or Leeds, and in large portions of the metropolis.*" The knowledge of social evils, together with the means of their prevention, being given, shall the Christian heart which animated Howard be withheld, whereby we may render natural science the worthy handmaid of religion?

To examine into the causes of misery,—to exert the reason, for the purpose of separating avoidable from necessary ills,—is a duty that we owe to self-preservation on the one hand, and Christian sufferance on the other. It can be no matter of surprise that, amidst other errors, man should at one time offer useless resistance to merciful afflictions, and at another should give way at the approach of ordinary troubles. As an individual I have observed instances in which, if the results of natural science, as tested by experience, can be trusted, the health of whole families has been blighted, the lives of valuable parents been shortened, not by the usual laws of mortality, but through manifest neglect of such means of health and life, as it hath pleased the Almighty to unfold to human reason. And I admired, and would wish to imitate, the resignation of their sorrowing friends, and would believe that, as regards individuals, such bodily pains are spiritual blessings. But because God, by means all powerful as they are merciful, brings forth fruits of good from seeds of ill, I cannot therefore limit my faith in those preventive means which are given to enable us to anticipate these social evils.

An efficient sewerage and drainage are the main conditions of public health, while ventilation and personal and domestic cleanliness are the essentials of an wholesome home. Attention to the sewers of Rome, at the end of tne fourteenth century, soon raised the population of that city from 30,000 to 80,000; while subsequent neglect afterwards reduced the number of the same people to 32,000.

At Vareggio, in the principality of Lucca, the inhabitants, (observes M. Villermé,) few in number, barbarous, and miserable, were annually, from time immemorial, attacked about the same period with agues; but in 1741 flood-gates were constructed, which permitted the escape into the sea of the waters from the marshes, preventing at the same time the ingress of the ocean to these marshes, both from tides and storms. This contrivance, which permanently suppressed the marsh, also expelled the fevers. In short, the canton of Vareggio is, at the present day, one of the healthiest, most industrious, and richest on the coast of Tuscany; and a part of those families whose boorish ancestors sunk under the epidemic of *aria cativa*, (Italian for bad air,) without KNOWLEDGE to protect themselves, enjoy a health, a vigour, a longevity, and a moral character unknown to their ancestors.

Nor are such things confined to foreign countries. The town of Portsmouth, which is built upon a low portion of the marshy isle of Portsea, was formerly much afflicted with the same disease that desolated Vareggio. But, in 1769, the town was paved, and the ague disappeared; "whilst Kilsea and other parts of the island retained the aguish disposition until 1793, when a drainage was made, which subdued its force."

The natural principles upon which these improvements are founded, are very far from being the privileges of wealth, or of power, so called. Like all large blessings they are as universal in their application as the knowledge which conveys them. The owner of the poorest tenement has it in his power to make his home a centre either of life or death, in proportion as he avails himself of the arts of health, or suffers the instruments of disease to do their worst. In a garden that belonged to some premises which I rented some two years since, dear reader, in the island of Malta, was a hedge of the common horse-shoe geranium, at least eight feet high. From long neglect, the soil under and around this floral fence had become one mass of mouldy leaves, while the hedge itself was choked with the dead wood of several seasons, which putrified the air and hindered ventilation. Nothing could exceed the beauty and the danger of this portion of the garden; by day its unbroken band of scarlet blossoms could be seen across the harbour from the city of Valletta; after night-fall, when the wind was still, the atmosphere, which was elsewhere fragrant with the heavy perfumes of the south, became most offensive to the smell along the line of hedge to an extent of about three feet on each side of it. Anxious to remove the cause, I set about to clean the surface of the ground, as well as the plants themselves, from all decayed vegetation; but I soon fell ill with fever, and the native gardener, a tall, strong, healthy, able man, crawled to the hospital shortly after, before the task was finished.

I have no doubt but that vegetable *malaria*, the *aria cativa* of Vareggio, (vapour arising from decaying vegetable matter,) was the cause of the disease. When the English first received possession of the island at the beginning of the present century, the land was but slovenly cultivated, and intermittent fever, or ague, was rife among the natives. This had almost become extinct, except at one or two points where the drainage was defective, until a severe drought during the years 1839, 1840, and 1841, destroyed a large portion of the general vegetation, and reduced the surface almost to the condition of an uncultivated country. During the autumn of 1841, numerous cases of fever of an intermittent character consequently occurred throughout the island.

Again, I may remark that similar effects occur in our

own more temperate and better cultivated country. It is only five months since I entered upon some premises within a few miles of London, drainage *from* which there was none, and which the proprietor confessed to me had been occupied the *four* previous years without any attempt to lessen, still less to remedy, the increasing mischief. The soil, which is porous, absorbed by dint of rain the liquid portion of the nuisance, (as if to teach man the necessity of washing even the earth itself,) and let it ooze into the kitchen well, which acted as a perpendicular sewer. The water, of course, came up like liquid manure, and if the garden ground had not been already saturated with *gaseous* manure, or the vaporous exhalations from impure sources, (or animal *malaria*,) I might have applied it to that purpose. That a source of impurity existed, was ascertained by personal observation; that the natural drain, effected through a porous soil by heaven's rain, washed a solution of the corrupted matter into the earth *below* this source, was proved by the pollution of the well; that a poisonous gas, or vapour, arose through the soil *above* the source, and from thence into the external atmosphere, was evident from such effects taking place upon the health of the indwellers as are known, by medical experience, to follow the absorption of foul air into the blood of man.

Considering any active measures to be dangerous while the family were in the house, I ordered no water whatever to be drawn from the well, and made a free use of chloride of lime. This salt, from the strong affinity of one of its constituents (chlorine gas) for some of the elements of animal substances, possesses the property of destroying contagious matters and bad odours. But the evil was beyond the art of chemistry. I fell ill with symptoms of fever which would probably have ended in typhus, except for prompt and constant medical attention, and a female servant, a remarkably strong healthy-bodied woman, was attacked with a severe and dangerous dysentery. It is to be remarked that she passed the whole day on the ground-floor, and was consequently more exposed to the action of poisonous vapours, which generally hang heavily over the surface of the soil. A further proof that these diseases arose from the source ascribed to them, is that they ceased upon our removal from the house, and not till then, and that a child belonging to a person left behind to superintend the thorough purification of the premises was seized with cholera. It should likewise be added that these diseases were not at that time prevailing in the surrounding neighbourhood.

The foregoing are examples, the first of vegetable, the last of animal *malaria*, both arising from the neglect—I think criminal neglect,—of removing organized matter in a decomposing, putrid, and unwholesome condition. This matter, productive of disease to indolence, is invaluable to the farmer for manure. "We know that vegetables are very dear in our markets," said a physician. "Why?" "Because our gardens are not sufficiently manured; this manure lies in our lanes and alleys and only wants collecting; but what would this be compared with the benefits of health from the purification of our atmosphere which its removal would produce?" The general and fatal nature of contagions would appear to be a warning to us that the duty of preventing the cause is as surely entailed upon each class as is the danger of being infected by it. How frequently in families, where great attention is paid to health, does fever which can be traced to no apparent source carry children to early graves! Beginning its ravages amongst the infant population of the poor, it next falls with the greatest intensity on adults, in the full vigour of life, whose existence is of most value to their friends and country. Which of us can say but what we may not this very day, during our intercourse with society, bring home to those we love the seeds of fatal fever? Far be it from me, however, by appealing to affection, to unman active exertion. After having done our best at home let us urge the knowledge of, and necessity of attention to, the means of prevention. We shall have to combat much ignorance and poverty, but must not forget that "while fever is undoubtedly to be regarded as the visitation of God, it is also to be regarded as the visitation of God for the sin of neglecting a population fallen in character and habits."

It requires, however, early association with nature for a mind to possess the power of calculating the action of matter upon life. For this reason, I would that children could be brought to play with matter from their earliest hours, so as to familiarize their minds with all its natural forms and properties. Without neglecting the beauty of a flower, I would not cramp their appetite of observation, for example, down to the barren details of botanical arrangement, but would push on towards such facts and principles as would have the widest use in after life. Even the limited scope of the native parish would afford ample means of valuable instruction. The daily walk, if varied with judgment, would teach the physical geography of the district; to follow the various water-courses would lead them along the natural boundaries of the different levels of the land; while in many an honest husbandman the child would find a fund of knowledge upon the nature of the surface-soil. The cutting of a new road, the digging the foundation of a house, or the formation of a rail-road, would tell the secrets of the subsoil. The method of drainage, as practically illustrated by the pattern farmer of the parish, should be followed out in its effects upon his crops, as well as regards the health of neighbouring cottagers; and no unfortunate instance of epidemic fever should occur without the apparent causes of it being strongly impressed upon the young observer.

The largeness of such lessons would satisfy the eager curiosity of childhood. Instead of learning by rote the names of objects, whereby the memory is strengthened for a time but the mind eventually weakened, the youthful student would draw in health with wisdom, and by receiving knowledge from so called unlearned men, would be prepared to sympathize with their joys and sorrows. When the laws of nature are thus unfolded in all their beauty and goodness, as they would be by an intelligent and pious mother, their effect, and I have watched it, is to counteract the deadening influence of artificial example, and to preserve the purest of our early associations.

The constant changes of the weather would supply food for another series of conversations. Observations upon light, electricity, and other atmospheric phenomena, in relation to the health of plants and animals, could be illustrated by such easy experiments as causing seeds to germinate under favourable and unhealthy conditions, as in the dark, in badly ventilated places, with an excess of surface-water, &c., with the view of making visible the control that is given us over natural functions. A desire for the extension of knowledge would be created by showing that freedom from fever and successful agriculture equally depend upon the efficient drainage of the surface-water, and that the ploughboy is in want of the same fundamental facts for the right understanding and practice of his art, as the physician requires for the *prevention* of disease. Not a plant can be raised, nor child brought up, without the effects of temperature, light, air, and food upon the functions of breathing, circulation, digestion, &c., being duly calculated. The keen wind that withers the leaves of vegetables, which are the organs of their respiration, nips the tender lungs of infants exposed to its influence. The over-crowded sleeping-room corrupts the air, and consequently the blood of those that breathe it, as certainly as the juices of greenhouse flowers are rendered diseased by their being too closely pent together with an insufficient supply of fresh air. The 8000 inhabited cellars in Liverpool, for want of light and air, are as pernicious to their occupants, estimated at the number of from 35,000 to 40,000, as

other cellars are to vegetation. Therefore, at least, the amount of natural science which is enjoyed by the gardener should be extended to every mother for the object of reducing the frightful mortality of sixty-two per cent. of children of the labouring classes of our countrymen that die before the age of five years.

The poorer classes, I am of opinion, especially require to be well grounded in a knowledge of the more general laws of nature. That they who have to earn their bread by working, in some way or other, the stubborn matter of which our earth is formed should possess few other ideas about their materials than such as pass current with an unlettered people, evidently entails a loss of social power. The ploughman and the miner can doubtless tell to an inquiring child a happy lesson upon soils and rocks, just so far as they appear to be connected with the money-value of their labours, but for want of principles that form the natural hinge between their facts and others, they can hardly improve as intelligent agents, or even use up the information which they do possess for the good of their health and homes.

Without humane reflections I fear it is easy for us to overlook the amount and nature of the knowledge which each man wants to enable him to fulfil the duties of reason. We are endowed with such an exquisite organization as makes ignorance of it ingratitude in the possessor. The matter of which we are formed is similar to that which circulates through other earthly channels; the organs that are built up with matter, are subjected to powerful influences that are placed within, and constantly call for, the control of reason; the functions of these organs are the instruments of every social and domestic duty and ill bear debility and pain, the prevention of which is as easy as the cure is difficult.

When man shall be brought to acknowledge (as truth must finally constrain him to acknowledge), that it is by his own hand, through his neglect of a few obvious rules, that the seeds of disease are most lavishly sown within his frame, and diffused over communities; when he shall have required of medical science to occupy itself rather with the prevention of maladies than with their cure; when governments shall be induced to consider the preservation of a nation's health an object as important as the promotion of its commerce, or the maintenance of its conquests, we may hope then to see the approach of those times when, after a life spent almost without sickness, we shall close the term of our unharassed existence by a peaceful dissolution.

Nor can we believe that the more admirable faculty of mind was lent only for the provision of the body. I would that the mental vision of every man were so strengthened as to take in the ends of life,—that the objects of to-day, and the hopes of to-morrow, could be compared with the fruits of eternity,—that the designs of love that would restore bodily health, mental vigour, and spiritual purity, to our race, could be revealed to every sufferer. To prepare the child of man for thus recovering the lost image of his first creation, I would examine the *causes* that were acting upon the individual. Within I should find germs of diseases, superstitions, and corruptions, both inherited and acquired; without, perhaps, a moral atmosphere as ill-ventilated as the closed cabins of the abject poor. For such causes of evil as were within my personal power I would substitute antagonist conditions; I would educate the mind and feelings to a just sense of those which the individual himself could best subdue; and would join with him in beseeching the Almighty to remove others that taught the lesson of our weakness.

I am acquainted with a parish situated in an agricultural county, which contains, besides numerous small farms, a considerable quantity of barren heath and open forest-land. The cultivated portion affords by far too little labour to the working poor; the forest is allowed by long usage to yield them fire-wood, and from the heath a miserable and precarious subsistence is obtained by the collection of manure. An enclosure of the waste land is the remedy proposed, which is looked forward to by the labouring population as a serious evil. Clinging to the privilege of gleaning a casual livelihood from the refuse of uncultivated lands, they are not sufficiently educated to be able to calculate the fruits of general tillage. The soil around their hovels is a stiff clay, through which there can be little natural drainage; the surface-water, left by the rains, is dissolved into an invisible and debilitating vapour, during the warmer weather, and is again condensed into mist at lower temperatures. The latter condition is productive of consumption of the lungs in man, and of the rot in sheep: the former is a constant cause of a low and intractable form of fever. The misfortune of being their own masters falls as heavily upon the moral as it does upon the physical welfare of the cottagers. Wanting themselves the means and intelligence that would be necessary to raise their homes above penury, and unconnected with the execution of works, either of public or private enterprise, which would afford them bread and keep them to steady habits of patient industry, they become desultory and inefficient labourers.

It must be evident to the reader that a general enclosure of this parish, with its consequent cultivation and drainage, would at once increase the amount of food, afford labour, and lessen disease: but the poor inhabitants are unprepared to avail themselves of these advantages. I know them personally, and have tried to win their confidence, but the soil of their minds wants culture equally with their parish lands, and when the enclosure does take place it will be forced upon an unwilling population.

The case, which is a painful one, leads me to an important principle, I mean the necessity of teaching every mind that there can be no private interest apart from public good;—that the most successful methods of commerce are those which include the largest amount of benefit to society in general;—that, however some few unimportant details may seem to imply the contrary, yet natural science altogether coincides with Christian revelation, in the main fact, that as surely as a home, or society, withdraws itself through selfish, or mistaken, motives from its national commonwealth, it acts in opposition both to natural and moral law, and deprives itself of the fruits of civilization in the largest sense of that word. The case, I think, teaches us to place in the right hand of every man the Word of God, and the book of nature in his left, and to translate both the written and the unwritten revelations of the universe to the heart and head of every child of reason.

It was the boast of an ancient sage (says Dr. Macculloch) that he had brought philosophy down from heaven to dwell among men, but the separation is a hazardous one; and if it has already been perniciously complete, let it be our endeavour to re-unite what ought never to have been dissevered, and in looking back to the regions whence they have descended, to render science and philosophy the handmaids of religion.

Let us hope, also, with Sir Humphry Davy, that even now

the tree of knowledge is being grafted on the tree of life, and that that fruit which brought the fear of death into the world, budding on an immortal stock, will become the fruit of the promise of immortality.

Trusting that you will turn these matters over in your mind, believe me your's affectionately, F.

THE area of duty, which is committed to the superintendence of each of us by the sublime code of evangelical morals is confessedly larger than our scanty powers can occupy. In this state of original helplessness, accordingly, one resource only remains open to us; to throw ourselves with all our infirmities, on the Divine help.—BISHOP SHUTTLEWORTH.

SEASONAL WILD FLOWERS.

FEBRUARY.

By me more priz'd is Nature's child,
Amid its native woodlands wild,
And more I love the simplest flower,
In field, or hill, or woodland bower,
By "great creating Nature" made,
Than when by man's presumptuous aid
With artificial beauties drest,
A handsome monster at the best.——MANT.

THE varying weather of February, destructive as it is to some of the firstlings of the year, as they venture forth prematurely from their winter's sleep, is not sufficient to check the gradual tokens of returning animation throughout the vegetable world. While the garden exhibits its early gift of anemones, hepaticas, &c., the hedgerows, banks, and pastures will not, in ordinary seasons, be sought in vain for a few additional blossoms, to add to those which we have already described as belonging to January; but which are still existing, and braving, in their hardihood, all the vicissitudes of the season.

The pastur'd mead, or stubble field,
Or garden lightly scann'd, may yield
The first of all its numerous kind,
Procumbent Speedwell. See, inclin'd
On arching stalk, of bright blue dye,
And with a round and pearl-like eye
Distinct, it shows its pendent head!
Pluck, but be cautious lest you shed
The petals of the tender flower;
And shorten thus the little hour
At most allotted it to grace
With transient bloom its native place!

Of all the numerous species of *Veronica* or Speedwell, indigenous to this country, the *procumbent* speedwell (*Veronica agrestis*), whose stems lie on the ground, instead of rising erect, is the first to make its appearance. Less interesting than some of the later species, it is nevertheless gladly hailed by the lover of wild flowers, who recognises in it the well-known features of an esteemed family, seldom failing, in some one or other of its members, to cheer the most desolate scenes, and to throw an azure tint over spots that would otherwise be barren and gloomy. Of the different kinds of speedwell, some inhabit the stream, others are found on chalky hills and sandy fields, some establish themselves in marshy ground, while others seek the shade of woodlands, and one species attaches itself to old walls. The Brook-lime (*Veronica beccabunga*), is frequently eaten as cress. It grows in rivulets, among water-cresses, and is mild and succulent in its nature. The leaves are of a bright green, blunt, slightly serrate, and somewhat fleshy. The flower-buds have a red tint, but when expanded, they resemble in their fine blue colour the *Myosotis palustris*, or Forget-me-not. Sprigs of brook-lime are taken to market in Scotland, and sold under the name of *Water purpie.*

But we return to notice the "Fair Maid of February," or Snowdrop, which, though not originally indigenous to England, is now spoken of in our botanical works as a native plant. This lovely flower is not noticed in the works of our older herbalists and early poets, nor is it often found, excepting in spots which are known to have been the site of ancient gardens. Gerard calls it the *Timely flowering bulbous Violet*, and says, "These plants do grow wilde in Italie, and the places adiacent, notwithstanding our London gardens have taken possession of them all, many years past."

The Snowdrop, winter's timid child,
Awakes to life, bedew'd with tears,
And flings around its fragrance mild;
And where no rival flowrets bloom
Amidst the bare and chilling gloom,
A beauteous gem appears.
All weak and wan, with head inclin'd,
Its parent breast the drifted snow,
It trembles while the ruthless wind
Bends its slim form; the tempest lowers,
Its emerald eye drops crystal showers,
On its cold bed below.

The snowdrop (*Galanthus nivalis*) belongs to the Narcissus tribe, and receives its name of Galanthus from two Greek words, signifying "milk" and "flower," on account of the milky whiteness of the blossom. The corolla is attached to the flower-stalk in so delicate a manner that it moves with the winds in every position, without danger of being snapped asunder, while its drooping posture enables it to throw off all superfluous moisture, and the pure whiteness of its petals causes them to act as reflectors of light and heat to the anthers. This plant grows wild in France, Switzerland, Austria, and Silesia. In this country it is occasionally seen in blossom in January, but more often opens its buds about the middle of February. The author of the *Flora Historica* gives the following hint respecting the cultivation of this plant, which, as it would, if generally adopted, give the snowdrop more of the character of a wild flower, than it receives from the usual formal arrangement, we insert as not inappropriate here.

The snowdrop appears to greatest advantage when it is seen springing from the grassy banks of an orchard, or the undisturbed turfy rising grounds of the garden; for as it seldom flowers well if removed oftener than every third year, it is not calculated for borders that are annually turned over; but in small gardens it may be planted under shrubs and trees, where it has a good effect if planted in large irregular clumps, for when planted out singly it makes no better appearance than a spot of chalk would do on the earth. In lawns and shrubberies, care should be taken to place these flowers plentifully in the most favourable spots that are seen from the windows of the breakfast room. When planted in the grass lawn they should have the appearance of growing wild, and therefore all formal clumps must be avoided, and they should be scattered as it were by chance, thick in some places, and thinly sprinkled in others, so as to connect the more important clumps into one irregular mass. As grass plots seldom require mowing until the time of the snowdrop's flowering is over, it may in many instances be planted in such sites to great advantage.

The bright and glossy petals of the Celandine or Pilewort (*Ranunculus ficaria*), are now to be seen here and there, lighting up the banks and hollows with their starry radiance, and reminding us of their relatives, the butter-cups of more advanced days.

See as along the grove you pass,
Thicket, or hedge, or pastur'd grass,
The *Vernal Pilewort's* globe unfold
Its star-like disk of burnish'd gold;
Star-like in seeming form, from far
It shines too like a glistening star.

This plant belongs to the Crow-foot or Ranunculus tribe, and is therefore allied to the anemones, aconites, hepaticas, pæonies, globe flowers, larkspurs, &c. of our gardens. Some of the plants in this tribe are remarkable for their poisonous properties, among which we may mention the true Aconites (*Aconitum*), and the Christmas Roses (*Helleborus*), as especially virulent.

Not unworthy of consideration is that very common example of a composite flower, the Dandelion (*Leontodon taraxacum*). By a composite flower, we mean a number of small flowers or florets (each perfect in itself, and producing its own seed) collected together into one flower-head, and hedged in, as it were, by one common involucre. A vast number of plants partake of this structure, and by becoming well acquainted with it we have the key to the knowledge of a great variety of species. The florets of the dandelion are strap-shaped, and the involucre which protects them has the remarkable property of folding together when the flowers fall off, in order to protect the young fruit, and of turning quite back to give more room to the fruit when it is ripen-

ing and increasing in size, thus at length allowing of that beautiful globose form in which the ripe dandelion seed is arranged. A similar result is observed in some of the thistles and other plants belonging to the same race. The term Dandelion is a corruption of *Dent de Lion*, or Lion's tooth. Bishop Mant thus notices the plant:—

And there the plant which clothes the ground
With strap-like flowers, a yellow round
Of gold, whose leaves indented show
Of points acute a jagged row,
Thence called, if right I guess the truth,
By Gallick name, "the Lion's tooth,"
With milk obnoxious to the taste.

By culture, and especially by blanching, the dandelion, like the lettuce and endive, can be deprived of a portion of its bitterness, and rendered sufficiently mild to be eaten as a salad. We are told that in France the roots and leaves, thus prepared, are eaten with bread and butter.

The Butcher's Broom (*Ruscus aculeatus*) generally exhibits at the latter end of February its singular flowers. The plant is small and shrubby, growing on heaths and in barren situations. It is stunted in its appearance, and does not exceed a foot and a half in height. The stalk is roundish, naked about the roots, but branching at the top. The leaves are of a bluish-green colour, short, oval, and prickly. The peculiarity in the plant is, that the small purple flowers grow upon the upper disk of the leaves, which are merely dilated extensions of the stalk. Each flower is succeeded by a red berry the size of a pea.

Mid barren heath the Butcher's Broom
On thorn-tipt leaves its lonely bloom
Infixes, where the central eye,
Swoln to a purple nectary,
Bright 'mid the greenish petals shows,
And dark green leaf, whereon it grows.

That lovely and fragrant shrub the Mezereum, or Spurge Olive (*Daphne mezereum*), whose garnet-coloured blossoms are greeted as welcome harbingers of spring in our gardens, is an indigenous plant, and may be found, though not commonly, growing wild in our woods. In mild seasons it begins to put forth its blossoms at the close of February, and their powerful fragrance causes them to be much prized. Yet underneath a pleasing exterior the mezereum conceals some deadly qualities. The bright red berries which succeed the blossoms are fatal poisons to man, though birds are observed to feed upon them and remain uninjured. The Mezereum gives its name to a tribe of plants of similar structure and qualities. The Spurge Laurel (*Daphne laureola*) is a common evergreen in our shrubberies, and fully partakes of the poisonous qualities of mezereum. Indeed, the acrid properties of all the species are such, that blisters can be raised on the skin, by binding on it a portion of the moistened bark.

On pastures dry or hedge-bank, see
Where creeps the *Barren Strawberry*,
Alternating its petals white
With radiate points of verdure bright,
Which, meeting in a central neck
Of hairy fringe, its chalice deck.

The Strawberry-leaved Cinquefoil (*Potentilla fragariastrum*) may now be recognised among the new comers. Cinquefoils are pretty little herbs, growing on banks or among short grass. One of them is a common roadside plant, known as *Silver weed*, on account of the whiteness of the under side of the leaves. The form of the blossom is precisely that of the strawberry, to which plant the cinquefoils bear a very near relationship; though instead of producing a delightful fruit, they bear their seeds on a hard and dry receptacle.

The ovate scaly buds, containing the fertile flowers of the Hazel, are now rendered conspicuous by their small bright crimson tufts.

The *Hazel*, too, which lately hung
His boughs with barren blossoms, strung
In wavy drops, on pendent rows
Begins his fertile buds disclose,
Unfolding from each scaly bed
Its spreading tuft of crimson red.
Regard it well! Few things invite
More pleasingly the curious sight,
Than those small tufts of crimson: few
More strange, than that, in season due,
Thence, wrapped in bearded husk, should shoot
The nut's hard shell and kernel'd fruit.

EFFECTS OF DIFFERENT TEMPERATURES ON THE BODY.

WHEN the air is warm and dry, it excites a most agreeable sensation in the lungs, and in every part of the body; it increases the power of function of every organ, and health is perfect; this is observed in a dry spring, after a cold and moist winter; but when the weather is intensely hot, and persons exposed to the burning sun in the tropics, they often drop dead suddenly from apoplexy; this has happened even in France and Spain, during very hot summers; all the functions, as breathing, digestion, &c., are diminished and oppressed; there is danger of mortification of wounds and ulcers, bowel complaints, fevers, hysteria, epilepsy, &c. Persons labouring under consumption have been advised to live in warm climates, but many physicians suppose that the acceleration of the breathing and pulse, caused by the hot air in summer, only hurries the sufferer to a more speedy death; the change of habitation, from a cold climate to a warm one in winter, is highly advisable, though it is now believed that the southern coasts of this country are as eligible as foreign climes for our consumptive patients. A cold and moist atmosphere produces debilitating effects on man and animals; a cold and dry air is not so injurious; it braces the nerves, and is favourable to health, although it sometimes induces determinations of blood to the head, chest, and abdomen, and causes inflammations in the organs of their cavities—*Ten Minutes' Advice on Coughs and Colds.*

THE ferry-boats of Someïsat and Birehjik, the great thoroughfares from Syria and Arabia to Mesopotamia, do not possess very high claims for convenience. They resemble a great coalscuttle with a flat bottom, and the stern a little pointed. The steersmen are two in number, for the boat being at once steered and propelled by a long sweep like the tail of a fish, it requires two men to work it, and there are four more in front, occupied, with loud bursts of exclamation, and groans innumerable, in clumsily beating poor Euphrates with two awkward oars. In the interior, camels, horses, sheep, and men are huddled together; and if the passenger, up to his ankles in water, stretches himself to free his foot from the heavy pad of a camel, or the iron pressure of a struggling horse, ten to one he receives a thump from the delicately managed sweep, which he may consider, according to his philosophy, either as a mere practical summons to crouch again, or as an emblem of the evils of life.—AINSWORTH'S *Researches in Asia Minor.*

DO FISHES SLEEP?

SERIOUSLY, I have often doubted whether any cold-blooded animals sleep; or at least whether they are not able to do without it for long-continued periods at will. I have known fishes, very remarkable, and easily recognisable, keep under the stern of a vessel and about her rudder for many days together, while sailing through the ocean; if they had slept during that time, of course the vessel would have left them; and, besides, as there is no shelter in the ocean, without going down to unfathomable depths, I think if the smaller fish were to sleep, all exposed as they must be, they would inevitably fall an unresisting prey to those ravenous tribes which continually watch to devour them.—GOSSE.

PHILOSOPHY is for ever entangling itself in nets of its own weaving, because it will not inquire of Him who designed, of the First Cause, and of His purposes.—MACCULLOCH.

THE very force which moves a clock is the Hand of the Deity.—MACCULLOCH.

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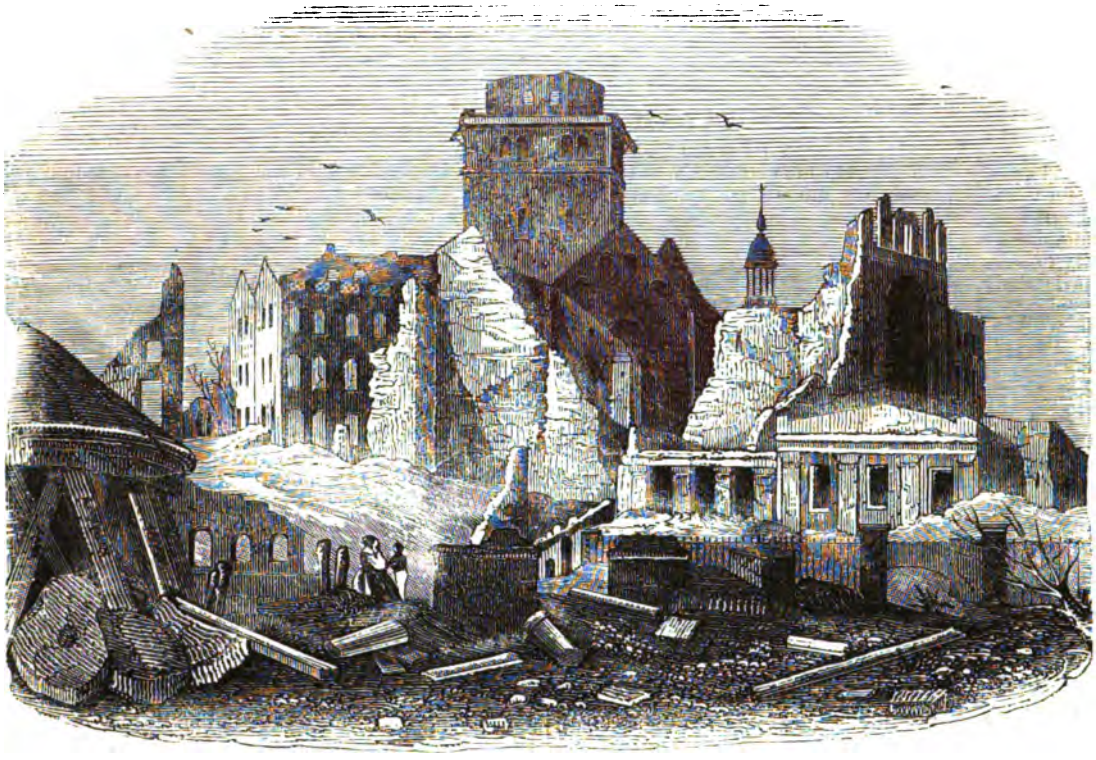
A MONTH IN GERMANY AND HOLLAND.



RUINS OF ST. NICHOLAS' CHURCH AND THE OLD EXCHANGE AT HAMBURG.

I.

SECTION I. VOYAGE FROM LONDON TO HAMBURG.

THE poet Rogers, in one of his agreeable essays, describes England as a nation of travellers, and assigns as a reason the numerous aids to locomotion with which nature and art have supplied us. And "none," says he, "want an excuse. If rich, they go to enjoy; if poor, to retrench; if sick, to recover; if studious, to learn; if learned, to relax from their studies. But whatever they may say, whatever they may believe, they go for the most part on the same errand; nor will those who reflect think that errand an idle one."

It is not necessary that the writer of the following hasty sketch should state what place he occupies in the above classification: it will suffice for him to say, in the language of the accomplished writer just quoted, that "travel, and foreign travel more particularly, restores to us in a great degree what we have lost. When the anchor is heaved, we double down the leaf; and for awhile, at least, all effort is over. The old cares are left clustering round the old objects; and at every step, as we proceed, the slightest circumstance amuses and interests. All is new and strange. We surrender ourselves, and feel once again as children. Like them we enjoy eagerly; like them, when we fret, we fret only for the moment; and here the resemblance is very remarkable, for if a journey has its pains as well as its pleasures, (and there is nothing unmixed in the world,) the pains are no sooner over than they are forgotten, while the pleasures live long in the memory."

Having during many years known Germany through the medium of her literature and science, it was with pleasure, qualified only by the absence from a happy home, that I sought a nearer acquaintance. After the usual preliminaries of procuring a passport and a place on board the Hamburg steamer, I proceeded late one night in August to the Custom-house stairs, in order to get on board the vessel, which was to start at four o'clock on the following morning. The cabman was driving past the spot, but two or three porters, with the dignity of men who know their business and are invested with a little authority, stopped the cab—shouted out, "John Bull, Hambr'," and on my ready affirmative, directed to the cabman a few reproachful words, hauled out my luggage, and proceeded with it at a rapid pace to the water's edge, stowed it in a boat, assisted me in, and instantly disappeared. Within two minutes of leaving my land conveyance I was in the midst of the river, and began to appreciate a most remarkable scene. The heavens above were lit with stars, which shone clear and bright as on a frosty winter's night; our way was through a forest of masts, each vessel showing its appropriate light and illumined cabin windows, but all so perfectly still, and so perfectly reflected by the smooth water, that it was difficult to mark the line between shadow and substance. Such a scene as this was necessary to the appreciation of the feeling which dictated Wordsworth's beautiful sonnet, said to have been composed on Westminster Bridge a little later than the hour at which I witnessed a similar scene:—

> Earth has not anything to show more fair:
> Dull would he be of soul who could pass by
> A sight so touching in its majesty:
> This city now doth like a garment wear
> The beauty of the morning; silent, bare,
> Ships, towers, domes, theatres, and temples, lie
> Open unto the fields, and to the sky,
> All bright and glittering in the smokeless air.
> Never did sun more beautifully steep
> In his first splendour, valley, rock, or hill;
> Ne'er saw I, never felt, a calm so deep!
> The river glideth at its own sweet will:
> [In truth] the very houses seem asleep,
> And all that mighty heart is lying still!

The transition from the open boat to the steam-vessel was from repose to activity: every one seemed to strive in the bustle preparatory to a voyage, except the tenants of the sleeping cabin, who, by the light of a large shaded lamp, were seen snugly occupying their dormitories, (which appeared like a collection of huge rabbit-hutches,) and who proved themselves to be well-seasoned travellers, by snoring in spite of the noise to which everybody else seemed in some shape or other to contribute. The interruptions to sleep during the night were numerous; one man in attempting to improve the light extinguished it, and diffused the fumes of oil, to the great annoyance of his neighbours, whose expressions of dissatisfaction and calls for the steward, were loud and general: on another occasion a military man called to take leave of a friend, and by dint of shaking and shouting succeeded in rousing him and everybody else. The noises on deck were of a more varied description, but they gradually subsided one by one, and all seemed to be reposing, when suddenly a tremendous tr-r-r-r-r, to which everything and everybody vibrated sympathetically, banished sleep for awhile, and produced sundry ejaculations about getting up the steam; time for starting, punctuality, &c. After snatching about two hours sleep, I went on deck at half-past six, and found the morning fresh and beautiful, and the steamer advancing rapidly towards the sea. Just below Gravesend a singular and melancholy sight appeared; the tall masts of a schooner appeared some ten or twelve feet above the surface of the water, while the body of the craft rested on the bed of the river,—the vessel having sunk during the night. As the hour of breakfast arrived, the passengers gradually assembled on deck;—they were of a motley description, several English, a Hamburg merchant with his family, a Greek, a Jew, several Germans, and a family from Mexico—the father a German, the mother a Spaniard—and the children conversing in both the languages of their parents; the father had been absent from Germany twenty years, and was returning to his native village to end his days.

The day was one of unqualified enjoyment: the weather calm and lovely; my companions pleasant and obliging; the captain's table abundantly furnished; and health and appetite invigorated by the sea-breeze. The second night was passed in uninterrupted sleep; the voice of the steward awoke me, and I saw through the little loop-hole of a window in the opposite berth the bright waves reflecting the morning sun. The second day was as fine and delightful as the first. Towards the afternoon we passed in the distance the little island of Heligoland, or Holyland, so named from the Temple of Bertha, the goddess worshipped by the ancient Saxons, which stood on it. The circumference of the island is not more than two miles; it is situated near the mouths of the Elbe and Weser; but the sea is fast consuming its shores, and will probably ere long convert it into a sand-bank. It was ceded to Great Britain in 1807, and is chiefly inhabited by fishermen, sailors, and pilots. The old flag of the island consisted of three horizontal stripes, white, green, and red; said to have been derived from the physical peculiarities as expressed in the following rhyme:

> White is our sand,
> Green is our land,
> And Red is our strand.

At about half-past ten on the second night we cast anchor at the mouth of the Elbe, there not being sufficient water to cross the bar. After another tranquil night, during which the boat had again moved onwards, we approached the light-house and the little town of Cuxhaven, a favourite watering place, to which the inhabitants of Hamburg resort for sea-bathing. Beyond Cuxhaven the right bank of the Elbe belongs to Hanover; it is flat and uninteresting, and covered by a sea-dyke: many village churches, however, became visible, and appeared to be quaint slight little buildings, such as we see in old German prints; the trees were chiefly pollard willows. The appearance of the left bank of the river presents a marked contrast: the land belongs to Holstein, and rises in gentle slopes covered with wood, and dotted with handsome villas and gardens belonging to Hamburg merchants. The long, straggling, fishing village of Blankenese peeps picturesquely from amid the shade of groves of pine and birch. The last place before reaching Hamburg is Altona, separated from the former place only by a creek, yet within the Danish territory. It has shared much of the mercantile prosperity of Hamburg, so that the merchants of the latter place bestow upon it the soubriquet of All-zu-nah, or All-too-near. The first appearance of Hamburg from the river was picturesque; its lofty houses with fronts coloured white, light yellow, and red; sharp roofs, pointed gables, numerous storehouses, wharfs, and shipping were glittering in the morning sun: its curious boats were sometimes freighted with the peasant girls of Vierland, in their picturesque attire, and moved along by a process which our Thames watermen would denounce; for while with us the boatman sits with his face to the boat's stern, and pulls backwards, the Elbe boatman stands erect, looks at the stern, and plies the oar by pushing the handle from him.

Section II.

A Day in Hamburg.

The free city of Hamburg displays its liberality over most other places on the Continent, in allowing passengers and their luggage to enter without search. The waterman conveys you from the steamer, to a sort of watchhouse on a wooden jetty, where an officer enters your name on a slate, with the number of your packages, and on being assured that they contain no merchandize, you are allowed to pass up a ladder to a guard-house where soldiers on duty are smoking, and chatting, and laughing with soldiers off duty, while numerous porters and drosky drivers solicit your patronage; so that unless you have previously decided what to do, and where to go, the novelty of the scene is likely to confuse and bewilder. For my part I was happy under the guidance of a very friendly German, whose acquaintance I had formed on board the packet, and whose kindness extended during the whole journey to Berlin, nor did it cease there, for he gave me several pressing invitations to visit his family and partake of his hospitality. This is only one instance, out of many, in which the demeanour of a fellow traveller was more like that of an intimate friend than of a passing stranger.

Having passed some antiquated and populous streets, a sudden turn brought to our view the destructive effects of the late fire; we made our way through long streets of ruins —a modern Pompeii—the effect was striking and melancholy, and lit up by the bright morning sun, the ruins stood out in all their rugged deformity, very different indeed from the effect produced at a later hour, when we viewed them by moonlight. Ruins in general look picturesque by moonlight, because the eye is impressed only with outlines and masses, which the imagination is busy in investing with the romance of bygone times; but on this brilliant day, the ruins of Hamburg stood out as ugly records of much suffering and distress, and presented nothing but masses of rubbish which wearied as they offended the eye.

We were soon comfortably lodged in Streit's Hotel, or rather in that portion of it which had survived the calamity, by far the greater part having been blown up to stop the progress of the flames in that direction. The heat of the day being excessive we refreshed ourselves with a very delightful beverage, viz., Moselle wine and Selzer water from the celebrated Brunnen of the Duke of Nassau; these liquids being mingled in ad libitum proportions, powdered white sugar is added, productive of a brisk effervescence, the very sight of which is a luxury in hot weather. We then sallied out to view the town, first taking the precaution to secure corner places in the Schnell post which was to start for Berlin at nine o'clock in the evening.

Hamburg presents an odd mixture of old and new buildings. The old houses are tall, grotesque, and ugly; the streets paved with little round sharp projecting stones, most painful for a stranger to traverse, while the space on either side, which by right pertains to the foot passengers, is blocked up with cattle, old book stalls, fruit sellers, earthenware, old iron, and pedlars discoursing most eloquently on the merits of their wares. Many of the streets are flanked by dirty canals of stagnant water, and some of these that, from the heat of the weather, consisted of little else than mud, were exhaling most unwholesome odours. These canals are supplied by damming up the Alster, a small river flowing into the Elbe, which, after forming a lake opposite a handsome row of houses on the Jungfernstieg, is let off through sluices, and after turning some flour mills, is distributed in minute channels over the town. One serious inconvenience arising from this arrangement is, that in winter, after a prevalence of west winds, which drive the waters of the German Ocean into the mouth of the Elbe, the streets through which the canals pass become flooded, and as the labouring classes in these streets inhabit underground cellars, the tenants are driven from them by the waters, which remain there for days together, and leave

behind them ooze and mud. The inhabitants of the upper stories are compelled by law to receive and succour their humble brethren during the flood; but as the poor people naturally prefer their own homes to the hearth of the stranger, they reoccupy their cellars long before they are dry; and ague, fever, and rheumatism are the frequent consequences.

The Jungfernstieg, or Maiden's Style, is the most celebrated public walk in Hamburg. On one side, through its whole length, is a row of handsome houses, a broad carriage road, and a walk planted with four rows of trees, bearing marks of the late conflagration, and bounded on the other side by the Alster just alluded to.

In these busy bustling streets the stranger's attention is caught by the Hamburg servants and the Vierlander peasant girls. Before dinner the former may be seen in great numbers going to or from market, gaily attired with lace caps and kid gloves; a splendid shawl is used to conceal the market-basket and its contents—a custom so general in this city that the means of the owner are often stretched to the utmost to procure a handsome shawl; those used by the servants of opulent families are often of considerable value, and descend like an heir-loom from mother to daughter. The Vierlander peasants are so called from being natives of several little lands or districts about the city, some depending on Hamburg, and some on Hanover. These districts are generally rich marsh lands, their inhabitants wealthy, and the women, on gala days, are said to wear diamonds and jewels that a princess would not scorn. Each district has a costume somewhat resembling that of the Swiss: the people are generally handsome, and look neat and lively. They give the markets and streets of Hamburg, where they stand with flowers and fruits, a gay and animated appearance. We were also struck with the appearance of the Reiten Diener, or body-guard of the magistrates, in their black dresses, their necks adorned with plaited ruffs, their heads with curled and powdered wigs, their backs with short Spanish cloaks, and their sides with swords. These personages, sixteen in number, act the part of mourners at funerals, and merry-makers at marriages; the Hamburgers never appear in person at a funeral, but employ those whose business it is—to mourn.

At three o'clock we visited the Exchange—a new and handsome building, standing uninjured in the midst of ruin and desolation. The merchants determined, if possible, to save this building, and therefore locked up a number of their body within the edifice, thus involving the desperate alternative on the incarcerated persons, either to save the building or perish with it. They happily succeeded in saving it, and the Hamburger now points it out to the stranger with pride and satisfaction: *first*, that the building is a noble one, and worthy of a large commercial city; and *secondly*, that so noble a building was saved from the flames by what we are disposed to regard as a harsh, if not unjust, mode of obtaining the exertions of their fellow-citizens.

The Exchange is a square building, with a central space, the four sides being occupied above and below with retiring rooms for private converse—coffee rooms, reading rooms, dining rooms, &c., &c. In the great central square the merchants meet daily, from three to four, each one in his appointed place conversing by turns with brother merchants from every mercantile spot on the globe. The swarms of this mercantile hive produced an uninterrupted hum, which, reinforced and reverberated by the lofty glazed roof, had a peculiar effect on the ear.

The fire, which lasted from the 5th to the 8th of May last, consumed sixty streets and squares, including above two thousand houses and many public buildings. This calamity was still a common topic of conversation—books and prints, descriptive of the fire, were everywhere offered for sale. Our frontispiece is copied from one of these prints, and very accurately represents an interesting group of ruins, viz., those of St. Nicholas' Church and of the old Exchange. At nine o'clock on the morning of the 5th of May, after the fire had been burning and extending with fearful rapidity, during eight hours, the chief of the fire brigade reported to the senate, that St. Nicholas' Church was in great danger. A number of men were instantly ordered to the spot, water was hauled up into the tower, and an engine was kept playing upon the walls; but all to no purpose. The wood-work covered with copper plates soon became intensely hot, and at about one o'clock smoke, mingled with steam, was seen to ascend from the tower. All further exertion was now in vain, although flames were not seen to issue from it until two hours later. These scarcely lasted half an hour, when the tower with its steeple toppled over, and fell with great violence, striking and setting fire to many of the neighbouring houses. Shortly before the fall, the fine old chimes played the hour as clearly and melodiously as ever—singing as it were their own funeral song, together with that of the tower, and shortly after, of the whole church.

St. Nicholas' Church was one of the oldest churches in Hamburg. It dates from 1164-1168. Its length was 400 feet, its breadth 150 feet; the height of the tower alone was 400 feet. Its spire rested upon eight copper gilt balls. In the year 1826 the interior was entirely renovated; the splendid paintings, carvings, and statues were cleaned and restored, so as to produce a highly pleasing effect. The organ was of large size, and the best in Hamburg or its neighbourhood.

On the morning of this unhappy day people had with great exertions filled the nave of this church with property of varied description, all of which was not only lost but contributed to augment the flames which consumed the sacred building. In the evening the flames extended to the old Exchange, which burnt with such fierce effect that nothing remained but the old portal. This building was for the most part constructed of wood covered with copper. The neighbouring Rath, or council-house, an extensive massive building, was blown down by cannon in order to stay the progress of the flames in this quarter.

We select the following passages from a few of the books descriptive of the fire: they are evidently written by eye-witnesses of the scenes they describe. The titles of these books are various; such as *Hamburg's Fate and Hamburg's Consolation. Hamburg's Fatal May-days. The Fire of Hamburg. Hamburg's Days of Sorrow during the Siege of* 1813 *and the Fire of* 1842. In some of these books the writers are not content with a simple narration of the truth, but seek to adorn it by flighty description and copious extracts from Schiller's beautiful *Song of the Bell*, in which a town on fire is very finely described. Still, however, from the nature of the subject, and one's presence on the spot, these little books are deeply interesting.

"During the whole night of the 5th of May the sky was glowing like a furnace. A dense smoke, mingled with steam, constantly ascended, and the whole conflagration was rendered more violent by a strong south-west wind. The spectacle was however most horribly grand as seen from the end of the Jungfernstieg,—the sea of flames was rolling onward with a lithe and nimble motion, lighting up everything in its progress; converting darkness, not into the brightness of day, but only making the surrounding gloom more horrible. Before us stood the massive church-tower, from which ascended the giant flames, coloured red and green with the molten metal: the roof of the church still continued to blaze. And far and wide around houses were burning and falling; while the thunder of cannon, which blew down other houses in order to give a check to the flames, fell painfully upon the ear. In the mid-distance the Binnen Alster presented its broad sheet of calm water, in which the flames played fitfully; on the opposite bank, between the blazing ruins and the water, there yet stood a row of small houses buried in the shade:—there the water was rushing through the sluices with melancholy sound, and everywhere was a wild rush and cry, the precipitous thronging of men, women, and children, coaches and cars laden with goods, all hurrying in confusion over the bridge. In the midst of all this was heard, forcing its way from time to time, the hollow rolling of the gunpowder wagon, with fresh supplies of powder to blow up or knock down more houses which the fire had not yet reached. On these wagons sat thoughtfully the artillery-men in their red uniforms, perhaps doubting whether in another hour they should be in existence,—whether they were not conveying the instrument of their own destruction.

"The streets were crowded and encumbered with carts, carriages, wagons, cars, trucks, and vehicles of every description, removing women and children; guards were hurrying to their posts,—police, on horse and on foot, endeavouring to introduce a little order in the midst of all this confusion. The people in hurrying backwards and forwards impeded each other: goods and furniture, which on account of their bulk had not yet been removed, were packed in wagons which people sought in vain to get conveyed away. In the anguish and tribulation of the moment they offered fifty, nay a hundred dollars for the loan of a horse; and when horses could not be procured, a number of men might be seen yoked to a heavily-laden wagon, drawing it away:—it was also remarkable to see hearses, those gloomy conveyances of the dead, now appropriated by the living. Such

was the aspect of the remoter streets,—those in the more immediate vicinity of the fire cannot be described, such was the wild confusion, distraction, and despair of the dense masses which occupied them. The approaches to these streets were by degrees occupied by goods, by helpless women, exhausted old men, and weeping children:—there they sat, cowering down to the earth, endeavouring to preserve a little remnant of worldly goods saved from the fire, and now endangered by selfish, dishonest men.

"In the Jungfernstieg, that broad cheerful walk by the side of the silver blue Alster, adorned with lime trees which were budding under the influence of spring, all was confusion and perplexity. Wagons rolling away with furniture, and all sorts of the most incongruous objects, the smoke and dust brought by the wind scarcely allowed the driver to distinguish his way, while flakes of fire falling thick and fast around often kindled the contents of the wagons, or set fire to the beds, linen, &c., which encumbered the road. All these means threatened to increase and extend the fire, when it was suddenly resolved to turn all the goods into the Alster, and soon this wide basin presented a singular spectacle. Objects of all kinds were floating about, driven by the wind to the opposite shore, where crowds of mercenary people were waiting to contend for their possession.

"In Rosenstrasse a house was about to be blown up: the engineer entered it quickly to see that no living being remained therein, when he found an old man sitting very quietly in his great arm chair.

"'Come, make haste out, old man, or you will have the house about your ears.'

"The old man replied very quietly, 'My sister is gone out of town: you must wait till she comes home.'

"'Impossible, there is not a moment to lose, you must come out quickly.'

"'Must I? No, indeed, I can't go!'

"'Then I'll call a couple of my men to carry you out.'

"This was immediately done. When the officer returned with his men, the old man got up, and was hastening into another room.

"'There is no time for joking now, old fellow,' said the officer.

"'Ah! but I must shut the window first,' returned the old man.

"'What's the use of that, when we are going to blow up the house?'

"'Never mind, you may talk, but if I don't do it my sister will scold.'

"The window was closed, the old man hurried off; and the next minute there remained no house for the exercise of the sister's authority, and no home for the poor old man."

The money that has been raised in different parts of the world for the relief of the Hamburgers, seems to be very wisely dispensed. Relief was not given indiscriminately to the suffering poor, but they were all set to work amid the ruins, or among the new houses, and were told that they should have lodging rent-free, and wages. Accordingly, in a short time several hundred small temporary houses were erected round and about the city, and through a few of its broadest streets; these houses are neat and comfortable, and are occupied by persons whose homes have been consumed by the flames. In some streets where the ruins had been sufficiently cleared, we noticed temporary shops of timber where the owners were plying their old trades on the old sites. Streit's hotel, which we occupied, is sadly shorn of its splendour:—it consisted of two buildings, one behind the other, comprising eighty-six apartments; the front, or major portion, was blown up: the back part, containing twenty-eight rooms and a handsome dining saloon, enables one to form an idea of the splendour of the whole. "We have led a life of industry," said the landlady to me, "and all its fruits were blown up into the air; we must begin life again, for we expect to get little or nothing from the insurance offices." Workmen were engaged in excavating the front part, preparatory to rebuilding, and it was amusing to see the leisurely way in which the rubbish was removed: each labourer had a pipe in his mouth, and a sort of tea-tray, on which he removed about a hatfull of rubbish at a time. "But in Germany," as it was more than once remarked to me, "we take everything easy."

After having satisfied our curiosity with viewing the ruins from several points, we proceeded on foot to Altona: the sharp paving stones vexed and irritated the feet, and explained the reason why the Hamburg women have never competed for the slipper of Cinderella. We passed by the Johanneum, a college under the care of professors of repute, where a good education is given for 120 marks per annum. The building is a very handsome one, in the round arch style, and contains the town library, consisting of about two hundred thousand volumes, and many valuable MSS. The exertions made to save this building from the flames were very great, and fortunately successful.

On passing through the gate of Hamburg, we observed a notice stating that the gates would be closed at a certain hour, somewhere about dusk, and that a toll, increasing progressively every hour till twelve o'clock, would be demanded from all who pass. On emerging from this gate we walked across a piece of neutral ground occupied by low taverns, show rooms, &c., to the gate of Altona, where the frontier of Holstein is indicated by the Danish coat of arms. There is not much at Altona to call for the remark of the mere passing stranger. The long walk of trees, called Paille Maille, is pleasant; the houses are old and shabby; the tomb of Klopstock an object of interest, painfully disturbed by the hundreds of initials which deface it.

The public conveyances between Hamburg and Altona are chiefly omnibuses and droskys, the bodies of which are of basket-work, and hold some eight or ten people. We rode back in an omnibus, which differed from one of the London species only in being more clumsy. The conductor is a better dressed and better behaved person, (our conductor displayed a gold watch and chain;) he turns a little piece of machinery which causes a bell to strike, and a number to be registered, for every person who enters. Fraud is thus in a great measure prevented, for should he neglect to strike, it would probably be noticed and reported by the passenger.

At four o'clock we returned to the Table d'Hôte dinner, the ceremony being performed in the large saloon before referred to, with covers for about one hundred and twenty or one hundred and fifty guests, although not more than about thirty were actually seated at the time when mine host ascended his throne to dispense the soup. It is very common, however, in Germany for the inhabitants of the town to dine at an hotel, and to have a particular place at the table d'hôte which they always occupy; on such occasions the napkin is put aside from day to day, together with the bottle of wine, which may last the frugal guest two, three, or four days, and both are produced from day to day until the one is soiled, and the other exhausted. The German Cuisine pretends to occupy a medium position between the French and English; rejecting the interminable knickknackeries of the one and the wholesale joints of the other. The German diet was to me very acceptable, especially the little compôts of apples, or of pears, or of apricots, which stand in the place of vegetables with us. The only thing that startles the uninformed traveller is the amazing number of the courses. It is true that you are not expected to partake of them all; not even by the waiter, who pleads in mute eloquence in their favour; but the puzzle at first is to know which to choose.

By about half-past five my indefatigable German Cicerone invited me to visit Tivoli—a sort of tea-gardens in the suburb. We were conducted thither by the omnibus, and I was surprised to find a theatrical representation going on in the open air. A stage was erected, and a large pit and two side galleries contained about five hundred people, chiefly women, with their young children and grown-up daughters, most of them busily engaged in knitting, and listening at the same time to an absurd play "done from the French into German." Every moving being moved on tiptoe in order not to disturb the audience, and at the end of the first piece there was a little buzz, but neither applause nor disapprobation. The audience seemed as little affected as if they were the same persons who sat there every evening, saw the same pieces, and were required to keep quiet. After the first piece we walked behind the stage, into some dry, dusty, cocknified gardens—of small extent and badly laid out. The whole length of this place on one side was occupied by what are called Russian mountains, *i. e.*, an inclined railway of wood, by means of which grown-up children descend in little wooden go-carts from the top to the bottom.

On our return we walked through the boulevards, or gardens, which extend nearly round the town between the two Alster basins. Up to the siege of Hamburg in 1813, by the French, under Davoust, this city enjoyed the unenviable reputation of being one of the strong-holds of Europe, and consequently a fair mark for her pugnacious neighbours to aim at. The horrible details of that siege

proved the folly of maintaining embattled walls round a populous trading town; accordingly in more peaceable times trees, shrubs, and gardens were planted on the summit of the ramparts, over the salient angles of the bastions, and downwards through the ditch to the glacis; interspersed with a variety of walks leading to summer houses, bowers, rustic seats, statues, and public monuments. The whole was very pretty, but dusty on account of the dry weather; and neglected on account of the demand for hands to prepare homes against winter for the burnt-out poor.

Section III.

Travelling in Germany.

With such persevering sight-seeing as this, it is possible to get a very good idea of Hamburg in one day, especially as there are no picture galleries or museums to attract the stranger. At nine o'clock in the evening we started for Berlin by the Schnellwagen, or Velocity coach, so called from the rapid pace with which it moves along, *i. e.*, about five miles an hour.

In order to procure a passage by one of these conveyances, which belong to the Government and are managed by its officers, the traveller must present himself at the post-office (which is generally the same building as the coach-office) with his passport properly *visé*, and indorsed for the place to which he proposes to travel: the whole fare must be paid beforehand, for which a receipt is given, containing also a long list of rules and regulations, and a blank receipt for luggage, which the traveller is to fill up and send with his luggage. This receipt, or "Ticket for the Journey," as it is called, together with its accompanying rules for the regulation of the traveller, is in German, or English, or French, according to the language spoken by the candidate for a place in the *mail*-post, as some people are apt to pronounce the German name for the velocity coach. The seats in the coach are numbered, the smallest numbers being attached to the corner seats, which are given to the first comers.

In Prussia everything is done by rule, and so minute are the directions that an Englishman is apt to smile more than once on perusing the "Notices" attached to the "Ticket for the Journey." They are too long for insertion here, or they might be given as a curiosity. One rule requires that no passenger take possession of a place the number of which is not marked on his ticket, and that during his journey, even when there is a vacant place which he would prefer to his own, he should not occupy it without permission from the post-master at the next office. With respect to the fare, travellers are to pay nothing more than is noted on the ticket; guards, postilions, &c., being absolutely prohibited from receiving remuneration. On a printed ticket, the number of parcels must be noted down by the traveller, with the nature of their contents, and the way in which the parcels are marked. This ticket is sent with the luggage, and delivered with it to the owner at the end of the journey. Sick or deranged persons are excluded from the Schnell post, as are also children under four years of age. Blind persons are not admitted without a guide to take care of them. At every post-office a book is kept, where travellers may record their complaints, if matter for such arise during the journey. These are a few of the more important regulations, but numerous others are stated in the ticket.

A peculiarity of the Schnell post is, that it is never full: that is, as many passengers as choose to apply are booked for the journey; but as there is but one Government Schnell coach for one journey, and this coach contains but nine persons, beiwagen, or extra coaches, are supplied for the remaining passengers, by the landlords at the various post-houses. The hauptwagen or main diligence is, in fact, the royal mail, and therefore, government property, and traverses the whole distance; but the beiwagen, though under the same rule and restriction as the hauptwagen, is the private property of the post-master, and is worked only one or two stages; consequently, when horses are changed, coaches are changed also, no matter at what hour, or however unpropitious the weather, or however soundly and sweetly the passenger may sleep, he must transfer himself into another coach, and wait until the whole of the luggage is transferred also. He need, however, be under no concern for the safety of his baggage; the greatest care is taken of it, and provided it be distinctly marked with the name of the owner, and his next place of destination, the post-office is responsible for it. These stoppages are pleasant enough by day, and in fine weather, because it gives the stranger an opportunity to look about him; but by night, and especially if it rain, it is indeed a trial of patience to be roused at every stage of an hour and a half or two hours, from the kind of dogged persevering sleep which two days', or a day and two nights' travelling, is sure to bring to the most watchful eyes, and step into the clumsy vehicle, which presents so many points of difference from its predecessor that one has to make many trials of many postures before the sleeping posture is again acquired.

But should the unfortunate passenger arrive late at the office to book his place, he had much better have remained away altogether; in the first place, he is sure of a centre place, where he will find no cosy corner wherein to rest his weary head, so that sleep will mock him at a distance, but never visit him; and secondly, he will for certain be in the beywagen, but happy may he think himself if that beywagen be not a drosky, *i.e.*, a ricketty worn-out gig, with leathern curtains, through the seams of which, or the angles of the vehicle, the night air and the rain contend for admission. Should it happen that there remain but three or four extra passengers over when the hauptwagen and one or more beywagen are filled, they are transferred usually to the smallest possible conveyance, without any regard to their comfort.

On arriving at the coach-office the numbers of the passengers are called over, and the guard conducts them to their seats. Here they remain, until called out again, one by one, to pay the ueberwicht or overweight of their luggage, which may vary from a few silver groschen to several dollars; but if the passengers have much large luggage it is sent by a baggage wagon. Before starting, the luggage receipts are returned to their respective owners.

The form of the coach is soon described:—in the fore part is the coupé, capable of accommodating three persons; then the mid-body of the coach, in which six bold persons allow themselves to be immured; and in the rear is a sort of warehouse, with folding-doors, capable of containing the luggage of the nine preceding travellers, provided their views as to the quantity of goods necessary to a journey be moderate.

By dint of much bawling, and hurry and agitation on the part of the conductor, the passengers, baggage, and postilions are in their respective places. Horns, remarkable for their penny-trumpet timbre, announce the departure of the Royal Prussian Schnell Post, with its attendant satellites, the Beiwagen.

My fellow passengers, although but five in number, were German, English, French, and Greek; they were very chatty, pleasant companions by day, and with the exception of the two sufferers in the middle places, good sleepers by night; the fatigues of the day disposed me for sleep, and notwithstanding the frequent change of vehicle I managed to sleep till dawn, when we arrived at Boitzenberg, a small antiquated town upon the Elbe, with a large clumsy old church. On leaving this place we quitted the Elbe altogether. Our road was in the territory of Mecklenburg-Schwerin: a large part of the land was fertile in corn, and contrasted remarkably with the sandy wastes of the Duchy of Lauenberg, near Hamburg, and the dreary oceans of sand about Berlin. In this neighbourhood numerous flocks of geese supply a large part of Europe with quills, and the natives with a delicacy called goose-breasts, consisting of that part of the bird smoked and cured like bacon. At Vellatin we were refreshed with clean water and white towels, after which some excellent coffee, and rolls and butter, were produced, on which, in my simplicity, I made a good breakfast, when I was informed that that was only a preparatory whet to *the* breakfast which we were to have at Ludwigslust. At this place we arrived at about ten o'clock, and sat down to a sumptuous meal, resembling rather an abundant dinner than a breakfast, and to the enjoyment of which forty minutes were allowed.

Ludwigslust is the residence of the Grand Duke of Mecklenburg-Schwerin; it is a very pretty place, the streets planted with double rows of trees, and everything arranged so as to please, or rather to leave nothing to offend the eye; its four thousand inhabitants seem as if they had nothing else to do but to keep the place in order, admire the palace and park, and bow to the well-dressed soldiers whose presence seems also more for show than use.

About noon we arrived at the Prussian frontier, as indicated by the black and white stripes upon posts, gates, and toll-bars; by a granite obelisk bearing the one-headed black eagle; and by the greater zeal, energy, and activity with

which everybody seemed to move. The passengers' baggage was here searched for the first time; the search was tolerably strict, but not offensively so. Our passports were here taken away, and returned, properly endorsed, at Perleberg.

In the market-place of this little town stands a Roland statue. The figure is cased in armour, and bears in its mailed hand a ponderous sword. It is about fourteen feet high, and stands upon a pedestal which rises six feet from the street.

It is only of late years that the origin and purpose of these statues has been at all understood: and as the inquiry is a curious one, the following information may, perhaps, be of interest to the general reader.

Roland, or Ruland statues, occur in no less than twenty-eight German towns, for the most part in Saxony. There is one of these statues at Arles, which is known by the term *La Dominante:* and they are also met with in some towns of Switzerland.

According to popular tradition, these statues were erected in honour of *Roland*, a great champion, and one of the twelve Paladins of Charlemagne. *Paladin* was the name given to knights errant, who wandered about the earth to give proofs of their valour and gallantry. They obliged every knight whom they met with in their travels, to acknowledge the transcendant beauty of their ladies, or in case of refusal, to engage with them in mortal combat. The first adventurers of this kind mentioned in the olden time belonged to the Round Table of King Arthur, in England, of whom the most famous was Launcelot of the Lake. After him Amadis de Gaul held a high place among these knights; and still later, the paladins of Charlemagne, at the head of whom was Roland or Orlando, became the theme of many a romance.

This Roland is represented as the nephew of Charlemagne. His character is that of a brave, unsuspicious, and loyal warrior, but somewhat simple in his disposition. According to the romances, he fell, together with the flower of Charlemagne's chivalry, in the Roncesvalles, one of the passes of the Pyrenees, during the retreat of Charlemagne from Spain. The rear of Charlemagne's army was entirely defeated by the Arabs, in the year 778, and the brave Roland was killed. In the dirges of the romance of those days this battle bears a conspicuous part. The chief place of the celebrated pass or valley of Roncesvalles is traversed by the (so called) "Gates of Roland," leading over the Pyrenees to France; and in the church of the little place, fabulous antiquities, bearing the name of Roland, are shown. His adventures are contained in the fabulous chronicles of Turpin (*De Vita Caroli Magni et Rolandi*), and in the old French romances relating to Charlemagne and his paladins. The celebrated romantic epic poems of *Orlando Innamorato*, by Boiardo, and *Orlando Furioso*, by Ariosto, relate to him and his exploits.

Such, then, is a brief account of this Roland, or Orlando, of whom there is no doubt some truth mingled with the mass of romance and absurdity which so largely abound in the old chronicles relating to the ages of chivalry; and such is the man to whose honour the popular opinion of Germany ascribes the erection of the Roland statues. But if ever this hero really existed, the Germans, particularly the Saxons, in whose former territory they are found, would probably, on account of the political relations existing between Charlemagne and the Germans, have been the last to erect statues to the honour of one of Charlemagne's knights.

The explanation given by intelligent writers has more probability about it, and is supported by better reasoning. It is supposed that these "Roland statues" of the German towns represent no historical personage whatever; but that they are merely the symbols of municipal authority, or of territorial jurisdiction or police. *Ruge*, in the old German, signifies a court of Justice, or of Pleas; and *Rugeland* (Rüland, or Röland) is a land, territory, or district, endowed with the privileges of holding such a court within itself, or of dispensing, within its own limits, justice both civil and criminal. Now this privilege, or this authority, and the determination to exercise it, are represented by a *town statue* (*weich-bild*), or statue of the highways and market-places; and these statues, or simple symbols of the privileged or incorporated districts, cities, &c., are the *Rolands*, or *Rülands* or, more properly, the *Rugeland's-Säulen*, which, in other words, are the stones, pillars, or columns of the several Rügelands, communes, or municipalities. *Der Roland*, or Rüland, says a German lexicographer, is "*ein riesen Bild*" (a gigantic statue), erected in the olden time in the market-places of several cities of Germany.

It would be easy to carry these explanations, and this history much further; but they must stop, in the present instance, with the proposition, that a Rölandsäul, or Rüelansëul, is the same with the well-known Erminsëul, so zealously destroyed by Charlemagne himself, and the same with the statue of *Mercury*, or *Hermes*, the accompaniment (and for the same reasons) of Greek and Roman market-places and highways; and that, probably, two of these Rölands, or Rülands, or Ermins, the apparent source of the name "Ermin Street," or "Herming Street," one for London, and one for Middlesex, are the originals of the famous giants in the Guildhall of our English capital.

The roads in Prussia are now as celebrated for their excellence as formerly for their wretchedness. Down to the year 1814 the traveller is described as being conducted *through* rather than *over* a wide irregular tract of loose sand, called a road merely because it was traversed by vehicles. The carriage often sank at once up to the axles, and the postilion displayed less anxiety to advance than to make the wheels exactly fit the ruts of those which had preceded it. Through the active exertions of M. Von Nagler, the post-master-general, and under the direction of an Englishman named Elliot, the art of making macadamized roads was introduced, and with such effect that between 1814 and 1827 no less than 877 German miles of good roads were constructed.

From Hamburg to Berlin the country, as seen from the road, is flat and barren, producing little but heath and gloomy plantations of fir. The road stretches over a portion of that great plain of sand which extends to St. Petersburg, and contains everywhere boulders of slate and granite rocks, varying in size from that of a pebble to that of a house. They were probably at some remote period transported from the mountains of Norway and Sweden, since they can be referred to no other source between the Elbe and the Baltic. They supply admirable materials for the construction of the new roads, and indeed but for these boulders, the roads could never have been constructed.

The approach to Berlin is indicated by the increased population and bustle. After passing Spandau, a strongly fortified town at the junction of the Havel with the Spree, we arrived at the royal abode of Charlottenburg, a village of aristocratic summer residences. The road then proceeds straight-forward through a succession of groves dotted with palaces, villas, and ornamental cottages: the traffic began to thicken: the fresh morning air was tainted with the fumes of tobacco, proceeding from the pipes of a whole regiment of foot-soldiers; and further on a troop of horse-soldiers slowly traversed the road, each member of which puffed at his morning's pipe. At the end of a long and handsome road, closed in by the Thier-garten on one side, and the the grand parade on the other, appeared the beautiful Brandenburg gate, through which we entered Berlin.

Section IV.

Arrival at Berlin.

The first aspect of this city produces a favourable impression. Having passed the Brandenburg gate you see the whole extent of the Unter der Linden, the finest street in Berlin. Its whole breadth is divided into five separate avenues by double rows of linden or lime trees, while the houses though not high are wide, spacious, and effective. At the other extremity of the street is a splendid display of architecture, such as cannot perhaps be seen from one spot in any other city; the colossal Palace, the beautiful colonnade of the new Museum, the elegant guard-house, the Italian opera, and the University. Within a very short distance, also, is the Arsenal, (considered by some the most perfect building in Berlin,) and the Academy of Arts.

Most travellers agree in representing Berlin as one of the most splendid and perfect of cities; there has long been a kind of fashion to so much over-estimate this capital, that it is difficult by reading merely, to gain a correct impression. There is much to admire in Berlin, and much to condemn; while therefore most writers paint a too favourable picture, it may be amusing, if not instructive, to notice the sketch taken by an unfriendly though skilful hand, and we believe with unprejudiced judgment.

"Berlin," says Mr. Laing, "has the air of the metropolis of a kingdom of yesterday. No Gothic churches, narrow streets, fantastic gable-ends, no historical stone and lime, no remnants of the picturesque ages, recal the olden time. * * Berlin is a city of palaces, that is, of huge barrack-like edifices, with pillars, statues, and all the regular frippery of the tawdry school of classical French architecture—all in

stucco, and frequently out at elbows, discovering the naked brick under the tattered yellow faded covering of plaster. The fixtures which strike the eye in the streets of Berlin are vast fronts of buildings, clumsy ornaments, clumsy statues, clumsy inscriptions, a profusion of gilding, guard-houses, sentry-boxes; the movables are sentries presenting arms every minute, officers with feathers and orders passing unceasingly; hackney droskies rattling about, and numbers of well-dressed people. The streets are spacious and straight, with broad margins on each side for foot-passengers; and a band of plain flag-stones on these margins makes them much more walkable than the streets of most continental towns. But these margins are divided from the spacious carriage-way in the middle by open kennels, telling the nose unutterable things. These open kennels are boarded over only at the gateways of the palaces to let the carriages cross them, and must be particularly convenient to the inhabitants, for they are not at all particularly agreeable. Use reconciles people to nuisances which might be easily removed. A sluggish, but considerable river, the Spree, stagnates through the town, and the money laid out in stucco-work, and outside decoration of the houses, would go far towards covering over their drains, raising the water by engines, and sending it in a purifying stream through every street and sewer. If bronze and marble could smell, Blücher and Bulow, Schwerin and Zeithen, and duck-winged angels, and two-headed eagles innumerable, would be found on their pedestals holding their noses instead of grasping their swords. It is a curious illustration of the difference between the civilization of the fine arts and that of the useful arts, in their influences on social well-being, that this city, as populous as Glasgow or Manchester, has an Italian opera, two or three theatres, a vast picture-gallery and statue-gallery, museums of all kinds, a musical academy, schools of all descriptions, an university with one hundred and forty-two professors, the most distinguished men of science who can be collected in Germany, and is undoubtedly the capital, the central point of taste in the fine arts, and of mind and intelligence in literature, for a vast proportion of the enlightened and refined of the European population—and yet has not advanced so far in the enjoyments and comforts of life, in the civilization of the useful arts, as to have water conveyed in pipes into their city and into their houses. Three hundred thousand people have taste enough to be in die-away ecstasies at the singing of Madame Pasta, or the dancing of Taglioni, and have not taste enough to appreciate or feel the want of a supply of water in their kitchens, sculleries, drains, sewers, water-closets. The civilization of an English village is, after all, more real civilization than that of Paris or Berlin."

We have already devoted a Supplement to the description of Berlin (*Saturday Magazine*, Vol. VII., p. 121); it will not, therefore, be necessary to dwell in detail on the most striking features of this city. A few remarks, however, may be made on certain minor details which can only be furnished by actual observation.

The traveller in France is everywhere distressed and annoyed at the number of mendicants that solicit his charity, in language frequently offensive and irreligious, and with looks which as often bespeak vice and hypocrisy as want and sickness. In Prussia the traveller, if he thinks at all on the subject, is surprised to see no beggars, and never to be asked to bestow alms except by one class of persons, who are not beggars by profession: these are the travelling journeymen, or Handwerk's Burschen.

By an ancient regulation in most parts of Germany and Switzerland, no apprentice can exercise his trade until he has passed a certain number of years in travel, in order to gain experience in his craft, and learn the different modes of practising the same trade in different countries. On first setting out he receives from the corporation or trade to which he belongs, a book, in which he registers his wanderings, and in which his employers certify as to his conduct. When he reaches a place at which he intends to stop, he applies to the members of his own trade, and if work is to be had he is employed: if not, he is furnished with a bed of clean straw under shelter, and occasionally a small sum from the funds of the guild; and next morning he must again proceed, nor can he remain many hours in any one place until work is procured. In the course of these wanderings he is often absolutely penniless, and but for the charity of the more wealthy might suffer severe distress. I have frequently been accosted by these persons, and have entered into conversation with them; I found them generally well-informed, as indeed may be expected from the admirable system of education that everywhere prevails; and they are most generally spoken of as deserving objects of charity. The external appearance of one may be taken as a type of the whole class, whatever be the trade: first, a pipe in the mouth; secondly, a large knapsack on the back, with a boot on each side; thirdly, a blouse, frequently drawn over very decent clothes.

When the term of his wanderings is expired, the apprentice returns home with a specimen of his skill, and if approved, he receives his freedom, and is allowed to set up for himself.

The return of one of these apprentices to his native town is the subject of a favourite ballad which I heard sung in Saxony. The apprentice, browned by the travel of three years, enters the street of his native town; he meets his friend, who passes by without recognising him; he then meets his betrothed—she also passes by without knowing him; he then meets his mother—she instantly utters a loud cry of joy, falls upon his neck, bursts into tears, and exclaims, "Mein Sohn! Mein Sohn!"

Berlin has one noble pre-eminence over every city of great population in Europe perhaps, and certainly over every city in Britain, in the management and care of her poor, and in the efficient arrangements for the relief of the distressed, and the suppression of mendicity, carried on by the gratuitous services of the middle class of her citizens. The following details are abridged from Mr. Laing's *Notes of a Traveller*, but I have had several opportunities of verifying their accuracy.

In the great towns of Prussia the management of the poor rests with the municipalities, and these are required to appoint poor-directors. In Berlin the duty of these poor-directors is the general care of the poor of the city, and of the poor-schools, the orphan-house, the work-house, the infirmary, the hospital for the aged, and three smaller hospitals; and the charge, direction, and superintendence of all the funds and expenditure, and management of the poor. The city is divided into fifty-six districts, each under its poor-commission, the commissioners being more or less numerous, according to the number of poor usually in their district, but in general being from five to nine, and each commission having within its own district, if possible, its own physician, surgeon, oculist, and apothecary, whose services are paid. The poor-commissioners receive no pay or emolument, but are benevolent persons, and the most respectable in their districts, who are requested to accept the office. The district is so divided that in general each poor-commissioner has not more than ten or twelve paupers receiving relief to look after. At the end of each month the poor-commissioners of each district meet together in a conference, to make a report of the proceedings in their respective subdivisions, and to settle the business of the month. As the whole efficacy of the system turns upon the poor-commissioners, both as to the relief of the distressed, and the just economy to the public, it is necessary to detail their duties.

If a pauper desires relief, he must apply to the president of the poor-commission of the district in which he resides, who receives the application, inquires into the grounds of it, into the situation, family connections, and other circumstances of the applicant; and if it be not so utterly groundless as to be summarily dismissed, refers it to the poor-commissioner in whose section of the district the pauper is living. He sends another poor-commissioner from another section of the district, to make inquiry also in the neighbourhood, and at the last place of residence in the city. These commissioners inquire of the landlord, the neighbours, the last employer; and in the monthly meeting of the whole commissioners of the district, a report of the result of the inquiry is made, and the case decided. In urgent cases, any one of the poor-commissioners of the district may, with consent of the president, grant an immediate relief, but this must be reported at the first monthly meeting of the whole. If the pauper has applied for relief, and the president finds that it should not be granted, he takes an examination book with him, in which there are twenty-five printed questions, which the applicant is bound to answer, concerning his age, state of health, capability of work, former trade or occupation, causes of its not supporting him now, number, age, and capability of work, of the members of the family, situation of the relations who by law are obliged to support him, (in Prussia people are legally obliged to support, if able, their nearest blood-relations,) and if there be any children in the family, whether they have been vaccinated, confirmed, sent to school, &c. This examination book is handed to the two commissioners appointed to examine into the case, who have

also their printed questions in it, to be replied to by the result of their inquiries concerning the applicant; and if sickness or physical inability is stated by the pauper, the physician of the commission writes his testimony also in the book; and lastly, the determination of the district poor-commission upon the case, as to granting or denying relief of a permanent kind, is written in this examination book, and carried into effect by the commissioners. This examination book is the groundwork of a standing personal document or certificate of the case of each individual pauper, or alms-receiver, by which every circumstance relative to his pauperism is known. If he changes his abode, and applies to the president of the new district poor-commission for relief, as being a pauper from another district, the examination book is sent for, but the president proceeds entirely as if it were a new case. The examination book follows the pauper wherever he goes as pauper, and his case, after repeated examinations, can scarcely be one not entitled to relief.

Medical assistance is granted by an order from the poor-commissioner countersigned by the president. Orders for fuel, or money to purchase it, are given very often, not to the single pauper himself, but to his landlord, to keep the house regularly warm.

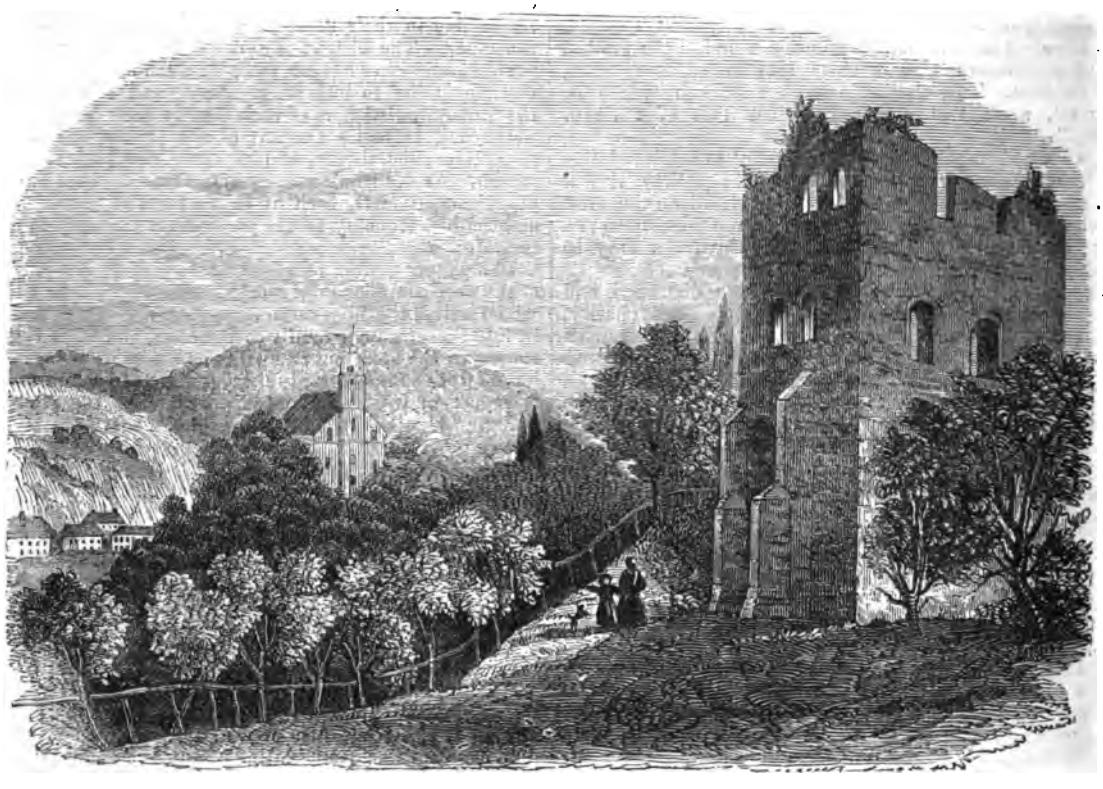
As messengers to the poor-commissioners there are twenty-three town sergeants, who receive pay, and who, with twelve poor-wards, are specially charged with the arrest of beggars, and taking them to the workhouse; and as they know the actual paupers and are daily among them, moving about, and doing the messages of the poor-commissioners in each division and district, to and from the poor, this certainty of being known prevents the pauper from begging. In the actual distribution of relief to paupers this is the only expense. Medical attendance, medicines, bandages, spectacles for old people, &c., are disbursements of the fund itself, not of the administration of it.

In the year 1838 the sum of 54,432*l.* was expended in Berlin for the relief and support of the poor, including the expenses of the workhouse, orphan and other hospitals, and of a school for the special purpose of educating depraved or morally neglected children.

Of this sum a portion is derived from permanent funds left for the endowment of the hospitals, or from legacies left to the poor, part from government and also as occasional gifts from the king, part from voluntary contributions of the inhabitants; but the greater part is derived from the city taxes, which in Berlin are heavy. Mr. Laing remarks that Berlin, with about one third more of population, pays above three times as much money for the support of the poor as Edinburgh.

But the Berliners consider that their mode of relieving the poor is better than by a direct poor-rate; their bounty comes to the poor as a relief, gift, or donation; not as part of a fund on which they have a just claim as being specially raised for their use, and to which they have a right. To the actual efficiency of the system in the two great points of relieving fully, humanely, and economically, all real distress—and in the suppression of all street begging, and much vice and idleness—the most hasty traveller, who inquires at all into the state of the poor, or even contents himself with his personal observation as a stranger walking about the town, must bear the fullest testimony.

A number of practical details in the working of this admirable scheme cannot find place here; it may, however, be noticed that the books of this establishment are kept in most perfect order, by a number of paid clerks. From the examination books and monthly accounts of each board, from the lists kept by charitable persons, who have regular poor pensioners upon their bounty, and from other sources, is formed a regular head-book, or ledger, in which each individual pauper has his account for himself, and from which it can at once be seen whether an individual is receiving too much, or deriving aid from any other charity. Charitable persons can also refer to it, to know if the poor they take an interest in, are in real distress. A few words must also be said respecting the school for neglected children. These children are first placed in a lazarette for fourteen days, in one wing of the hospital, to be sure that they are free from infectious disease; the sick are on the other side, and the children are only admitted to mingle with the others when perfectly clean and well; and their moral defects are in some degree ascertained. Useful trades and women's work are taught the boys and girls in these institutions.



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THE FIVE PORTS OF CHINA OPEN TO BRITISH TRADE.

INTERIOR OF A CHINESE FORT.

II. FOO-CHOO-FOO.

Foo-choo-foo, the second in our list of the Chinese ports in which this country has now a powerful interest, is situated on the banks of the river Min, and is a town of much commercial importance. It is the capital of the province of Fokien, and lies to the north-east of Amoy on the same coast, at a distance of five miles from the sea.

The narrow passage at the mouth of the river Min is called Woo-foo-mun, and is in name nearly the same as the Bocca Tigris of the Canton river, to which it bears some resemblance. There is a ruined fort on each side, and various others are scattered about the hills on the banks of the river, but they merely serve to add to its picturesque beauty, being most of them perfect ruins, and all, with the exception of one at Mingan, entirely dismantled and untenanted. No war-boats of the description of those about Canton were found here; the only ones seen by Mr. Lindsay's party were small heavy boats, little different from the boats of the country. Two or three war-junks were seen lying at the Kwang-tow, where all vessels entering or quitting the harbour stopped to procure their permit. Mingan is distant about twelve miles from Woo-foo-mun; and the mountains on each side are cultivated in ridges to the very summit with wheat and vegetables.

For about five miles in the vicinity of Mingan, the river is contracted to a narrow channel of not more than a quarter of a mile; and the mountains on each side rise abruptly to a height of several thousand feet. The scenery is highly beautiful, and strongly resembles that on the banks of the Rhine. A few miles above Mingan the river divides into two wide branches, the northern of which leads to Foo-choo. The banks of the river are here of the richest alluvial soil, and the mountains recede to some distance from the banks; one bold abrupt ridge, terminating in a perpendicular cliff on the southern side, is very remarkable. Having sailed about twenty-five miles from Woo-foo-mun, a forest of masts and several handsome pagodas intimated the vicinity of the capital; and finally we were gratified with a view of the far-famed bridge of *Foo-choo-foo*, of which the splendour and magnificence is celebrated over the whole empire. The town is here built on both sides of the river, and is perhaps about two-thirds the size of Canton. The bridge consists of thirty-three arches, or rather diamond-shaped piles of huge masses of granite, which support transverse blocks of enormous dimensions. The length of the bridge is four hundred and twenty yards, the breadth not above fourteen feet; and narrow as this is, a large portion is occupied with temporary shops. The depth of the river is three and four fathoms, with a very rapid current; the flood-tide is hardly felt, except by occasioning a rise in the water. As a work of labour the bridge is wonderful, but no symptoms of architecture or science are displayed; in many places it has sunk considerably, but from its massive structure, it has already stood the test of centuries, and will probably endure for many more. I confess we were disappointed after having read Du Halde's account of this wonderful bridge of one hundred arches described as follows:—"It (Foo-choo)

is chiefly famous on account of its situation, commerce, and multitude of learned men, the fertility of its soil, fine rivers that carry the largest barks of China almost up to its walls, and lastly, for a surprising bridge of more than one hundred arches, built with fine white stones across the bay."

In point of local and commercial advantages few cities of the empire are more favourably situated than Foo-choo. The fine river Min, which is navigable for ships of the largest burthen to within at least ten miles of the town, consists of three principal branches, which take their rise, one in the district of Kee-choo-foo, in the neighbouring province of Che-kiang, and after passing through the country of the Woo-e hills, in Keen-ning-foo, whence comes all the finest black tea, it unites with the other two branches which have their origin among the mountains of Keang-se, and take a serpentine course through the foot of Yinping, Ting-chow, Shaen-woo, and Yung-chuun, so that they join the other river shortly before it reaches the capital. The liberty of trading here is therefore of immense advantage, because the tea, which hitherto has been taken at a vast expense to Canton, will now be conveyed in boats from the very farms where it is cultivated, on board the ships. All the green tea grown in Che-kiang and Keang-nan will also find a comparatively easy transit by this route, although Ning-po is perhaps the port which presents the greatest facilities for the trade in raw silks and green teas. Foo-choo is also a far more central situation than Canton for the distribution of British woollen manufactures, which, from the coldness of the climate, must be in greater request here.

The principal trade of Foo-choo appears to be carried on with the neighbouring province of Che-kiang. Mr. Lindsay saw numerous vessels of this place lying in the river and daily entering and quitting the port: they are distinguished by their peculiar build, which adapts them only for coasting vessels, and their black cloth sails. Wood and timber are the chief articles of trade. Tobacco is largely exported; but up to the date of the recent treaty, tea, the staple produce of this part of the country, was not allowed to be transported by sea. The cause of this prohibition evidently arose from the fear that were it permitted, foreigners would avail themselves of it to get their supply without going to the port of Canton for it.

Dried fruits are exported from Foo-choo to all parts of the empire, and among them is mentioned a delicious species of orange, the pulp of which has the flavour of the muscadine grape, and forms an excellent preserve. The sugar made at this town is of excellent quality.

The hills in the neighbourhood of Foo-choo are covered with cedar, orange, and olive trees, and numerous pagodas and pretty country houses enliven the vicinity. The tiles on the latter are of a blue colour, and make a gay appearance when brightened up by the rays of the sun. But the fair exterior of Chinese towns and residences is generally deceptive, as the following observations of Mr. Gutzlaff will prove:—

Large and flourishing cities are found only where a ready water communication with other parts of the empire can be carried on. The greatest sameness exists in all the cities. In the larger ones are a few well-paved streets lined with shops; but the greater part of the streets are very narrow, extremely filthy, and planted with mere hovels. The suburbs of many cities are much larger than the cities themselves, and it is by no means extraordinary to see an immense walled space without any houses, where formerly a city stood. Villages and hamlets have a beautiful appearance at a distance; but on entering them, one sees nothing but a heap of houses irregularly thrown together, the outside fair to behold, but the inside without furniture or comforts, and more filthy even than a stable. This does not apply to one district only, but it is common to most.

Although the fields and gardens are beautifully laid out, there yet appears in them little attention to elegance or pleasure. The gardens are very few, and a Chinese grandee delights more in artificial landscapes, laid out in a small compass, than in an extensive park, or a flower-garden. Utility is studied in preference to pleasure. The cultivation of grain is the all absorbing occupation of the majority of the nation; and every spot which can possibly yield a crop by dint of labour, is converted into a rice or corn-field.

The productions of the province of Fokien include musk and precious stones, silk, and cotton; iron, mercury, and pewter. Its hills are supposed to contain gold and silver, but there is an express prohibition to prevent these precious metals from being sought for. The bamboos which grow abundantly along the streams and water-courses of this province, are used for pipes to convey water up the sides of hills to the rice-grounds, and are also employed in the manufacture of chairs and tables.

Having noticed the chief points of interest connected with Foo-choo, we proceed to the accounts given by Commander Bingham, and Professor Kidd, of some Chinese diversions and ceremonies practised at the commencement of the year, and also on the arrival of Spring. The latter of these accounts has a peculiar interest, when we connect it with the customs so nearly resembling it, which were prevalent in England in former times.

Great preparations are made among the Chinese, to usher in their new year, which commences about the middle of February. One of our authorities states that twenty days previous to New Year's day are set apart for preparations, and twenty days afterwards for the enjoyment of the customary festivities. Mr. Bingham, however, speaks of the diversions lasting at Macao only ten days. On these occasions the Chinese frequently indulge in a novel kind of game at shuttlecock. Seven or eight persons form a ring, and when they have thrown the shuttle into the air, they endeavour to keep it up by striking it with the hands or feet; but their thick shoes prevent their being very expert at this game. Another diversion is as follows; in a temporary shed are ranged a number of tasteful ornaments, such as miniature pagodas made of wood and coloured paper, &c. Before each of these is placed a gaily coloured round pillow with a firework in the centre of it. When all is ready these pillows are brought out one by one, and the match being lit, it is placed on the ground and exploded, sending up a small feathered arrow on which is marked its respective prize, and whoever catches it, receives the specified ornament: one arrow however, may be considered a blank, as the party catching it has to provide a similar entertainment the following year.

At this season there is general holiday-keeping and feasting, and small fire-works are discharged almost incessantly night and day.

There is also a season of public festivity designated "the introduction of Spring," which begins when the sun is in the fifteenth of Aquarius. Families go to the temple to worship, and travel into the country for amusement during the continuance of the festival. It comprehends ten days, variously designated according to the following order: fowl, dog, pig, sheep, cow or buffalo, horse, man, grain, hemp, and pea-day. The seventh or man-day is the most important. At this season an image of the human form is made of clay at the expense of government, and called Tae-suy, which is worshipped as the god of the year, in allusion to the cycle of sixty years employed by the Chinese in their chronological computations, together with a buffalo of the same materials, denominated the spring buffalo. On the day preceding the term, the magistrate of every provincial city (*che-foo*) the chief officer of the district (*foo*), goes out in state to meet the Spring, when he offers sacrifice and makes prostrations to these two figures. Several children are also dressed out in the gayest attire by the inhabitants of different streets, who tax their fancy to emulate each other in splendid dresses; they are called

"spring colours," and are placed on tables, and carried on the shoulders of persons who parade the streets with them. The next day the magistrate already alluded to goes forth as the priest of Spring, in which capacity he is the greatest personage in the province, and with his whip strikes the buffalo two or three times in token of commencing the labours of agriculture. It is then broken in pieces with stones by the populace, who expect from this circumstance a year of plenty. The decorated tables, with the living figures upon them, are taken to the various public offices to return thanks for the silver medals distributed on these occasions.

We learn from Scott that a favourite diversion of the Chinese during the winter months is kite-flying. Their kites have a hole in the centre, across which are placed several strings; and when they are up in the air, the wind passing through the hole produces a loud humming noise. Some of them are very pretty and ingenious, being in the shape of birds and butterflies, the wings of which are made of loose thin paper, which flutters about as they rise into the air.

Davis gives a more particular account of these kites, which we here subjoin.

In kite-flying the Chinese certainly excel all others, both in the various construction of their kites, and the heights to which they make them rise. They have a very thin as well as tough sort of paper, made of refuse silk, which, in combination with the split bamboo, is excellently adapted to the purpose. The kites are made to assume every possible shape: and, at some distance, it is impossible occasionally to distinguish them from real birds. By means of round holes, supplied with vibrating cords or other substances, they contrive to produce a loud humming noise, something like that of a top, occasioned by the rapid passage of the air as it is opposed to the kite. At a particular season of the year not only boys but grown men take a part in this amusement, and the sport sometimes consists in trying to bring each other's kites down by dividing the strings.

SPEAKING MACHINES.

I.

Among the automata constructed at different periods by ingenious men, some of the most curious are those relating to the imitation of speech, and of other sounds emanating from the vocal organs of men and animals. In the recorded instances bearing more or less on this matter, some are mere deceptions, wherein the sounds, though apparently emitted by pieces of mechanism, depend on a mere juggle; while in other cases mechanism has been so contrived as to impart to a current of air the character of speech or of singing.

Having in a former volume* noticed many automatic contrivances of various kinds, we shall here attempt to explain the principles whereon M. de Kempelen, and more recently our ingenious countryman, Mr. Willis, of Cambridge, have sought to imitate speech, by contrivances in every way scientific and worthy of notice. We shall avoid all mention of the numerous and marvellous statements of ancient and middle-age writers, as to speaking-statues and oracles; since it is now pretty well known that so far as speech of any kind was produced, it resulted from a concealed confederate, and was therefore a mere imposition on the credulity of the auditors.

The first thing we have to consider is—what are the sounds which the mechanist proposes to imitate? Wherein do a sentence, a word, a syllable, a letter differ one from another? It is not difficult to see that, though the teeth, the lips, the palate, the tongue, and the back and sides of the mouth, modify the sound produced, yet the *vowels* are the true materials of speech. In the same manner that variety of pitch forms the groundwork of music, modified by length of note, loudness of tone, and varied expression; so do the vowels appear to be the groundwork of vocal language, modified by the action of the tongue, teeth, lips, palate, and mouth generally. This is so far understood, that for ages the elements of language have been divided into two great classes, *vowels* and *consonants*. There is, however, at the present day, a strong tendency to depart from the classification formerly used, because, it is found, on careful analysis, that many sounds in the English language have no single characters to express them, whereas others, represented by single characters, are in reality, compound sounds. It will conduce to the clearness of our details to state the views entertained on this subject by two eminent writers on the philosophy of voice, Professor Wheatstone, of London, and Dr. Rush, of Philadelphia. We will consider them in succession.

Mr. Wheatstone remarks:—

The vowels are formed by the voice, modified, but not interrupted by the varied positions of the tongue and lips; Their differences depend on the proportions between the aperture of the lips and the internal cavity of the mouth, which is altered by the different elevations of the tongue. The vowel-sound "*aw*," as pronounced long in "*fall*," and short in "*folly*," is formed by augmenting the internal cavity by the greatest possible depression of the tongue, and at the same time enlarging the separation of the lips.

Taking this sound as a standard, Mr. Wheatstone compares all other vowel sounds with it, by arranging them in the following table.—

Aw	. . .	O	. . .	Oo
Ah	. . .	Ou		
Ae	. . .	Eù		
A	. . .	Eú		
E	. . .	Ü		

Departing from the standard sound "*aw*," there are two series, the one represented in the left-hand vertical row of the table, and the other in the upper horizontal row; in the first, the external aperture remains open, while the internal cavity gradually diminishes by the successive alterations of the tongue; in the second, the tongue remains depressed, while the aperture of the lips is gradually diminished. The second vertical column gives an intermediate series of vowel sounds, obtained by different elevations of the tongue when the lips are partially closed; these, though abounding in many foreign languages, are not used in our own. All the most usually-pronounced vowel-sounds are indicated in the table; but practised ears may distinguish others intermediate in each series; for each vowel may pass to the next in order, either above or below it, by imperceptible gradations. All these vowel-sounds are subject to modification, according as the soft palate is raised so as to prevent the sound from issuing through the nasal channels, or as it is depressed so as to allow the partial escape of breath through the nostrils; the latter modification, though much employed by the French, is not permitted in the English language. Of the general capabilities of our vowel-sounds Mr. Wheatstone remarks:

The extreme inadequacy of our written language in its representation of the articulations of speech is very obvious. We have six characters which are called vowels, each of which represents a *variety* of sounds quite distinct from each other; and while each encroaches on the powers of the rest, many simple vowels are represented by combinations of two letters. On the other hand, some simple vowel letters represent true diphthongs, consisting of two distinct simple vowels, pronounced in rapid succession; thus *a* consists of *a* and *e*, *i* of *ah* and *e*, *u* of *e* and *u*. Again, the literal diphthongs are mostly simple vowel sounds, as *ea* in "*bleak*," *ie* in "*thief*," &c. This want of correspondence between the characters of our written, and the sounds of our spoken language, has been a great obstacle to the proper understanding of the real elements of speech. A child is taught that the letters W, H, Y, make the syllable "*why*;" now if we examine the sound of this word, we shall find it to be formed by the rapid succession of the vowel sounds *u*, *ah*, *e*. In attempting, therefore, to imitate by artificial means the sound of this word, we should pay no regard to the letters of which it is formed; the elementary *sounds* alone

* See *Saturday Magazine*, Vol. XVIII., pp. 62, 63.

are the objects of our attention. The same observation is generally applicable to the words of our language.

In classifying the *consonants*, Mr. Wheatstone attends to the same principles which guide him in his analysis of vowel-sounds. He disregards the alphabetic characters which so inefficiently represent them, as also the names by which these characters are designated. He adduces the letters G and X as instances where a simple character is made to represent a compound sound; and the letter S as the representative of four different sounds, as in "*sea*," "*his*," "*vision*," and "*sure*;" while on the other hand the compound characters SH, TH, DH, NG in "*song*" &c., are representatives of single sounds.

Acting on these principles, Mr. Wheatstone arranges the consonants into three classes, which he names *mutes*, *sonants*, and *narisonants*; the first two differing chiefly in the amount of audibility; while the third requires that breath should pass through the nostrils. He further subdivides them into *explosive* and *continuous* consonants; the first being those wherein the breath or voice is entirely stopped before the sounding is commenced, and then released suddenly; the others being those not so distinguished.

	Mutes.	Sonants.	Narisonants.
Explosive.	P	B	M
	T	D	N
	K	G	Ng
Continuous.	F	V	
	•	Y	
	Sh	J	
	S	Z	
	T	Dh	
	•	R	
	Ll	L	
	Kh	Gh	

Mr. Wheatsone recommends, that in order to test and compare these consonants, it will be desirable to articulate them with the same vowel, as Pe, Te, Be, &c.

An important and interesting feature in the above table is the link which connects the sounds in the first and second columns. When the vocal organs are in the proper position for uttering any one of the articulations of the first column, a different quality may be given to it according as it is accompanied or not by the sound of the larynx. Thus, for F and V the tongue, lips, teeth and palate are used in a similar manner; the only difference being that, to produce the latter, a sound is emitted from the chest, or rather from the vocal mechanism at the bottom of the throat. A similar difference is observable between P and B, T and D, &c.; indeed, every *sonant* has its corresponding *mute*.—

This rule, (says Mr. Wheatstone,) seems to be violated, however, with regard to the sounds L and R. But though the corresponding mutes of these sounds are not in the English language, they are to be found in other tongues. The sound denoted in Welsh by Ll, is the mute corresponding to our L; and though it is extremely difficult to catch this sound from merely hearing it pronounced, attention to the rule will enable any one to articulate it properly in a few minutes. The organs must be in a proper position for articulating L, but the voice must not sound; or, in other words, the L must be whispered, and then followed by the vowel.

By this mode of analysing vocal sounds, Mr. Wheatstone showed that any piece of mechanism which could produce the sounds in the first column might be made to produce also those in the second, and even in the third also, by introducing a mode of emitting an audible sound as if from the larynx and (in the case of M, N, and Ng), producing a sound similar to speaking through the nostrils.

Let us next consider the mode in which Dr. Rush treats the analysis of vocal sounds. This gentleman, who is an American physician, has written a work on the *Philosophy of the Human Voice;* in which, as an introduction to some curious disquisitions on oratory and language, he divides the vocal sounds of the English language into thirty-five elements. The imperfections and redundancies of the language are such that he wisely abandons the use of specific characters to represent sounds, but adopts well-known words in which the sounds in question are heard. The following will represent the classification:—

Tonic diphthongs=*a*-ll, *a*-rt, *a*-n, *a*-le, *i*-sle, *o*-ld, *ou*-r.
Tonic monothongs=*ee*-l, *oo*-ze, *e*-rr, *e*-nd, *i*-n.
Subtonics=*b*, *d*, *g*, *v*, *z*, *y*-e *w*-o, *th* en, a-*z*-ure, *ng*, *l*, *m*, *n*, *r*.
Aspirations=u-*p*, ou-*t*, ar-*k*, i-*f*, ye-*s*, *h*-e, *wh*-eat, *th*-in, pu-*sh*.

In this table, when any doubt might exist as to the sound meant, a short word is given wherein the sound occurs; in other cases a letter only is used.

The first two of these divisions include what are generally termed *vowel* sounds, but which Dr. Rush terms *tonics*, as being the foundation and support of vocal enunciation. They are produced by the joint functions of the larynx and mouth, through which the air must pass in their formation. The tonics have a more musical quality than the other elements; they are capable of indefinite prolongation; they admit of ascent and descent through all the intervals of pitch, and they may be uttered more forcibly, and with more abruptness, than the other elementary sounds.

But the first and second divisions, though alike in possessing the qualities just enumerated, differ in this circumstance,—that the vowel, in each example of the first division, really represents a double sound or diphthong. When the letter *a*, as heard in the word "*day*," is pronounced simply as an alphabetic element, without intensity or emotion, two sounds are heard in succession. The first has the nominal sound of this letter, and issues from the organs with a certain degree of fulness; the last is the element *e*, as heard in "*eve*." Now Dr. Rush conceives that the seven sounds included in the first division have this double character, and he thence denominates them tonic diphthongs. The remaining five tonics seem to present nothing of this duplication, and hence obtain the name of monothongs.

The third and fourth classes correspond, in some degree, with the *mutes* and *sonants* in Mr. Wheatstone's classification. The aspirations are a sort of articulated whisper, that is, a whisper modified by the tongue, lips, &c.; whereas, the *subtonics* have the vocality of the tonics, though in a smaller degree. The sound of the subtonics is less agreeable than that of the tonics. The clearness and brilliancy which distinguish the tonics, are in the subtonics obscured, or even destroyed by a kind of aspiration which partially destroys the latter tones. The subtonics are capable of more or less prolongation; but they do not admit of much force, nor can abruptness be given to them with any considerable effect.

In presenting the above details, we have not ventured to decide which is the most philosophical mode of analysing and classifying the elementary sounds of language. There are other classifications to which we may hereafter invite attention: our present object is to acquaint the reader with certain general principles which must guide the mechanician in the imitation of vocal sounds. He must pay attention, not to the names of the letters of the language, but to the *sounds* of the language; for unfortunately these do not always correspond. If, taking Mr. Wheatstone's instance for illustration, the mechanician wished to produce a speaking figure capable of uttering the word "*why*," he must utterly discard the nominal values of the three separate letters *w*, *h*, and *y*; and attend to the three sounds *u*, *ah*, *e*, or *oo*, *ah*, *e*, which, if heard in rapid succession, give a near approximation to the sound of the word "*why*." This being understood, we shall endeavour in a future number to explain the modes in which the difficulties of such mechanical contrivances have been attempted to be surmounted.

POWER AND MAGNIFICENCE OF ENGLAND.

We quote from an American work the following testimony to the greatness of our country. The writer is by no means over-partial to us, but the passage is an eloquent one, though the facts which he states are evidently far from agreeable to him.

In England or *out* of England, one is everywhere met with the evidence of her greatness. Whether he stand in the centre of London and feel the pulsations of that mighty heart which sends its life-blood to the farthest extremities of the British empire, or enter her palaces and manufactories, or walk along her docks, or travel the world, the exclamation is still, "Great and Mighty England!"

Her power seems omnipresent, her ships circle the pole, and "put a girdle round the earth." Her cannon look into every harbour, and her commerce flows into every nation. She has her word to say in every part of the habitable world. Scarcely a nation projects an outward scheme without first looking up to behold the aspect which England will assume toward it. Nineteen hundred years ago the Roman standard first floated on the shores of Britain. Then a race of barbarians, clothed in the skins of wild beasts, roamed over the uncultivated island. The tread of the legions was then heard on the plains of Africa and Asia, and the name of Rome was written on the front of the world. Nearly two thousand years have rolled by, and Julius Cæsar and all the Cæsars, the senate, the people, and the empire of Rome have passed away like a dream. Her population now only a little exceeds that of New York State,—while that island of barbarians has emulated Rome in her conquests, and not only planted and unfurled her standard in the three quarters of the globe that owned the Roman sway, but laid her all-grasping hand on a new continent. Possessing the energy and valour of her Saxon and Norman ancestors, she has remained unconquered, unbroken, amid the changes that have ended the history of other nations. Like her own island that sits firm and tranquil in the ocean that rolls round it, she has stood amid the ages of man and the overthrow of empires.

A nation thus steadily advancing over every obstacle that checks the progress or breaks the strength of other governments; making every world-tumult wheel in to swell its triumphal march, must possess not only great resources, but great skill to manage them. Looking out from her sea-home she has made her fleets and her arms her voice. Strength and energy of character, skill, daring, and an indomitable valour exerted through these engines of power, have raised her to her present proud elevation.

Her navy embraces *six hundred vessels**. Besides these she has fleets and steam-ships and packets so constructed as to be easily converted into war ships. In the short space of two months she could send a hundred and fifty more steam-frigates well equipped to sea, making in all seven hundred and fifty war vessels; so that she could stretch a line of battle ships from Liverpool to New York, each separated only four miles from the other. Twenty-seven millions of people in the three kingdoms sit down in the shadow of her throne. In the East a hundred and fifty millions more come under her sway, beside the vast number civilised and uncivilised, that inhabit her provinces in every quarter of the globe. The *Liverpool Times*, in announcing the birth of the Prince of Wales, thus sums up the vast extent of the empire:—"Salutes in honour of his birth will be fired in America,—on the shores of Hudson's Bay, along the whole line of the Canadian Lakes, in New Brunswick, Nova Scotia, Newfoundland, in the Bermudas, at a hundred points in the West Indies, in the forests of Guinea, and in the distant Falkland Islands, near Cape Horn.—In Europe, in the British Islands, from the Rock of Gibraltar, from the impregnable fortifications of Malta, and in the Ionian Islands.—In Africa, on the Guinea Coast, and St. Helena and Ascension, from the Cape to Orange River, and at the Mauritius.—In Asia, from the fortress of Aden in Arabia, at Karack, in the Persian Gulf, by the British arms in Affghanistan, along the Himalaya mountains, the banks of the Indus and the Ganges, to the southern point of India, in the island of Ceylon, beyond the Ganges in Assam and Arracan, at Prince Wales's Island, and Singapore, on the shores of China, at Hong Kong, and Chusan, and in Australia, at the settlements formed on every side of the Australian continent and islands, and in the Strait which separated these Islands of the New Zealanders. No Prince has ever been born in this or any other country, in ancient or modern times, whose birth would be hailed with rejoicing at so many different and distant points in every quarter of the world."

Here Brother Jonathan breaks out somewhat ill-naturedly:—

After glancing over this catalogue of countries he might well inquire where is there a spot where English cannon do not speak English power? Of her rejoicings at home, we have nothing to say. Let her hail the birth of a monarch, who *may* be, with acclaims, bell-ringings, and the firing of cannon, till "the fast anchored isle" rock to the Jubilate, the world may listen or not, as it pleases. But the echo of her guns north of Boston and New York—beyond the Rocky Mountains—south of Florida—and east of Charleston, has something startling and ominous in it. Along the St. Lawrence, Lake Ontario, Erie, and Michigan, one long booming shot rolls down over these free States, saying, "England is here, and her cannon too." The wandering tribes of the western prairies and Guianian forests hear it and cower back to their fastnesses, for England is there. It sends terror through millions of hearts as it thunders from the harbours and fortresses of the East Indies. The vessels entering the Mediterranean turn an anxious eye to the rocks of Gibraltar, as the smoke slowly curls up their sides: and the report of a thousand cannon say in most significant language that England is there. To the reflecting man there is *meaning* in that shot which goes round the earth, England sends her messengers abroad to every nation, and the insignia of the power are scattered among all the tribes of the great family of man; while she sits amid the sea, as if her power was the centre of tides, whose pulsations are felt on every shore, and up every continent-piercing river.

* Strange to say, the American has *understated* the fact: the *Official Navy List* for January, 1843, contains no less than six hundred and seventy ships and vessels of war.

THE COLOSSEUM AT ROME*.

I hail thy desolation, blood-stained pile!
'Tis as it should be! 'Mid the prostrate halls
Of Justice and of Piety,—where senators
Gave peace to nations, or the white-robed choirs
Chanted hosannas to the King of kings,—
There let the stranger ruminate;—there weep
For Time's insatiate ravages. But here,
Where earth is rank with carnage,—blood of man
Wasted in hideous revelry by man;
While coward Wealth and bloated Power looked on,
And congregated myriads yelled applause
In frantic exultation; even the maid,
With lip departed and suspended breath,
Gasping in curious earnestness, surveyed
The writhe of mortal agony;—shall we weep?
Weep—that the tide of Time hath swept them hence,
And left their mansions desolate,—their halls
Of murderous triumph silent, echoless
As their own graves?—that Rapine's felon hand
Hath rent thy pond'rous architrave; and dislodged
Thy deep embedded cornice, and unlocked
Thine adamantine vault's gigantic mass?
—Yet thou art beauteous! From thine every part
A thousand dreams of ages passed away
Crowd on the eye of fancy,—from the arch
Tier above tier in long succession piled,
Through which the azure canopy of heaven
Beams in unclouded brilliance, to the vault
Black in its dense profundity of shade:
Whilst o'er thy mould'ring galleries, straggling wild
The tangled foliage, Nature's mantle, veils,
In graceful negligence, the guilty scene.
Be ever thus, proud fabric! With that brow
Of shattered grandeur still to after ages
(More eloquent than all the lore of schools,)
Whisper of man's mortality. And thou,
Stranger! if well attuned thy thoughts, receive
The solemn lesson! turn thee from the scene
Of Pagan godliness to Man redeemed—
To Man o'er Death victorious, led from earth
By perfect holiness and Christian love.

Bishop Shuttleworth.

* See *Saturday Magazine*, Vol. III., p. 97.

JAMES WATT,

THE INVENTOR OF THE STEAM-ENGINE.

THE leading epochs of Watt's life are too familiar to dwell upon; but they may be here noted for the sake of reference. He was born in 1736, and died in 1819. In 1755 he came to London, and placed himself with Mr. Morgan, a mathematical and nautical instrument maker in Finch Lane, Cornhill. In 1757 he settled in Glasgow; but the corporations molesting him as an interloper, the University "protected him, by giving him a shop within their precincts, and by conferring on him the title of mathematical instrument maker to the University." A few years after he was required to perfect a model of one of Newcomen's steam-engines, used by the Professor of Natural Philosophy in his lectures, which would scarcely ever work satisfactorily; and his mind being turned to the subject, he completed his great invention in 1765. Some time elapsed, and some difficulties were encountered, before it could be brought into practical operation; and then the inventor was harrassed by piratical opponents, and by the opposition raised in parliament to an extension of his patent; which, however, he attained in 1775, for twenty-five years; and on its expiration in 1800, he retired from business with an ample fortune.

Watt was so delicate that his parents did not venture to impose anything in the shape of severe tasks upon him; they left him very much at liberty in the choice of his occupations, and it will be seen he did not abuse the indulgence. A gentleman one day calling upon Mr. Watt, observed the child bending over a marble hearth, with a piece of coloured chalk in his hand; "Mr. Watt," said he, "you ought to send that boy to a public school, and not allow him to trifle away his time at home." "Look how my child is employed, before you condemn him," replied the father. The gentleman then observed that the child had drawn mathematical lines and circles on the hearth. He put various questions to the boy, and was astonished and gratified with the mixture of intelligence, quickness, and simplicity displayed in his answers; he was then trying to solve a problem in geometry. Influenced by his parental solicitude, Mr. James Watt very early put a number of tools at the disposal of the young scholar, who very soon used them with the greatest possible address. He would take to pieces and again put together the various toys that came within his reach, and he was very active in making new ones. Somewhat later he undertook the construction of a small electrical machine, whose brilliant sparks became a lively source of amusement and surprise to his young companions. * * * * * *

Upon the whole, Mr. James Watt augured most favourably of the nascent powers of his child. Some other of his more distant relatives, less discerning, did not share in these hopes. His aunt, Mrs. Muirhead, sitting with him one evening at the tea-table, said "James, I never saw such an idle boy! Take a book, or employ yourself usefully. For the last half-hour you have not spoken a word, but taken off the lid of that kettle and put it on again, holding now a cup, and now a silver spoon over the steam; watching how it rises from the spout, and catching and counting the drops of water" formed by condensation.

Every meeting of the Lunar Society gave fresh occasion to remark the uncommon fertility of invention with which Watt was endowed. "I have thought," observed Dr. Darwin one evening, "of a kind of double pen, a pen with two points, by which one might write the same thing twice over at the same time, and thus supply himself at once with the original and with a copy." "I hope," replied Watt, almost immediately, "to discover a better method for accomplishing the same object. I will mature my ideas to-night, and communicate them to you to-morrow." The *copying-press* was invented the next day; and even a small model was prepared, ready to show its powers. This most useful instrument, now so generally adopted in all the offices and counting-rooms in England, has recently received some slight modifications, of which various artists have assumed the credit to themselves; but I can truly affirm, that the present form was described and delineated as early as the year 1780 in the patent of our Associate. * * *

A water-company in Glasgow had established, on the right bank of the river Clyde, great buildings and powerful machines, for the purpose of conveying water into every house in the town. When the works were completed, it was discovered that on the other side of the river there was a spring, or rather a kind of natural filter, which abundantly supplied water of a very superior quality. To remove the works was now out of the question; but a question arose as to the practicability of drawing the water from wells on the left bank, by means of the pumping engines then existing on the right bank and through a main-pipe to be carried by some means across the river. In this emergency Watt was consulted; and he was ready with a solution of the difficulty; pointing to a lobster on the table, he showed in what manner a mechanist might, with iron, construct a jointed tube which would be endowed with all the mobility of the tail of the crustacea; he accordingly proposed a complete jointed conduit-pipe, capable of bending and applying itself to all the inflections, present and future, of the bed of a great river; in fact, a lobster-tail of iron, two feet in diameter, and a thousand feet in length. He soon after furnished plans in detail, and drawings; and the design was executed for the Glasgow Water Company, with the most complete success.—ARAGO'S *Life of Watt.*

SIBERIAN COLD.

THE cold still continued, and the thermometer constantly indicated 58°. In such a temperature a journey in sledges would have been very disagreeable, but on horseback the actual suffering is such as cannot well be imagined by those who have not experienced it. Covered from head to foot in stiff and cumbrous furs, weighing thirty or forty pounds, one cannot move; and under the thick fur-hood, which is fastened to the bear-skin collar and covers the whole face, one can only draw in, as it were by stealth, a little of the external air, which is so keen that it causes a very peculiar and painful feeling to the throat and lungs. The distance from one halting-place to another takes about ten hours, during which time the traveller must always continue on horseback, as the cumbrous dress makes it impossible to wade through the snow. The poor horses suffer at least as much as their riders, for besides the general effect of the cold, they are tormented by ice forming in their nostrils and stopping their breathing: when they intimate this, by a distressed snort and a convulsive shaking of the head, the drivers relieve them by taking out the pieces of ice, to save them from being suffocated. When the icy ground is not covered by snow, their hoofs often burst from the effects of the cold. The caravan is always surrounded by a thick cloud of vapour: it is not only living bodies which produce this effect, but even the snow smokes. These evaporations are instantly changed into millions of needles of ice, which fill the air, and cause a constant slight noise, resembling the sound of torn satin or thick silk. Even the rein-deer seeks the forest to protect himself from the intensity of the cold; in the tundras, where there is no shelter to be found, the whole herd crowd together as closely as possible, to gain a little warmth from each other, and may be seen standing in this way quite motionless. Only the dark bird of winter, the raven, still cleaves the icy air with slow and heavy wing, leaving behind him a long line of thin vapour, marking the track of his solitary flight. The influence of the cold extends even to inanimate nature; the thickest trunks or trees are rent asunder with a loud sound, which, in these deserts, falls on the ear like a signal shot at sea; large masses of rock are torn from their ancient sites; the ground in the tundras and in the rocky valleys cracks and forms wide yawning fissures, from which the waters which were beneath the surface rise, giving off a cloud of vapour, and become immediately changed into ice. The effect of this degree of cold extends even beyond the earth; the beauty of the deep blue polar sky, so often and so justly praised, disappears in the dense atmosphere which the intensity of cold produces; the stars still glisten in the firmament, but their brilliancy is dimmed.

SIBERIAN DOGS.

THE dogs have much resemblance to the wolf. They have long, pointed, projecting noses, sharp and upright ears, and a long bushy tail; some have smooth and some have curly hair; their colour is various—black, brown, reddish-brown, white, and spotted. They vary also in size; but it is considered that a good sledge dog should not be less than two feet seven and a half inches in height, and three feet three quarters in length (English measure.)

Their barking is like the howling of a wolf. They pass their whole life in the open air; in summer they dig holes in the ground for coolness, or lie in the water to avoid the musquitos: in winter they protect themselves by burrowing in the snow, and lie curled up, with their noses covered

hy their bushy tails. The female puppies are drowned, except enough to preserve the breed, the males alone being used in draught. Those born in winter enter on their training the following autumn, and are not used in long journeys until the third year. The feeding and training is a particular art, and much skill is required in driving and guiding them. The best trained dogs are used as leaders, and as the quick and steady going of the team (usually of twelve) and the safety of the traveller depend on the sagacity and docility of the leader, no pains are spared in their education; so that they may always obey their master's voice, and not be tempted from their course when they come on the scent of game. This last is a point of great difficulty; sometimes the whole team, in such cases, will start off, and no endeavours on the part of the driver can stop them. On such occasions we have sometimes had to admire the cleverness with which the well-trained leader endeavours to turn the other dogs from their pursuit; if other devices fall, he will suddenly wheel round and by barking, as if he had come on a new scent, try to induce the other dogs to follow him. In travelling across the wide tundra, in dark nights, or when the vast plain is veiled in impenetrable mist, or in storms or snow-tempests—when the traveller is in danger of missing the sheltering *powarna*, and of perishing in the snow—he will frequently owe his safety to a good leader. If the animal has ever been in this plain, and has stopped with his master at the powarna, he will be sure to bring the sledge to the place where the hut lies deeply buried in the snow; when arrived at it he will suddenly stop, and indicate, significantly, the spot where his master must dig.

[Von Wrangel's *Expedition to the Polar Sea.*]

HISTORICAL NOTICE OF THE CHARTER-HOUSE. II.

The estates with which the benevolent Thomas Sutton* endowed the Charter-House consisted chiefly of freehold property, and according to the rental in 1673, consisted of the estate about the Charter-House, namely, in the lane and the yard before the house, and the backside of the wilderness, now called Sutton's Street. Also of some lands at Hackney, in Middlesex; the leasehold, free and customary rents and farm-rents of property at Southminster, Cold Norton, Great Stanbridge, Little Hallingbury, all in Essex; Castle Camps, and Balsham Manor in Cambridgeshire; Buslingthorpe and Dunsby, in Lincolnshire; Elcombe Manor and Park, in Wiltshire; the ancient revenue of the whole being 4493*l.* 19*s.* 10½*d.*

But upon winding up the accounts there remained in the hands of the executors a considerable sum of money which they were directed to bestow in additional purchases. This was accordingly done, and property was bought in Cold Norton, Elmstead Park, Tryans, Jackletts, and Little Wigborough, all in Essex; Higney Grange and Isle, in Huntingdonshire, Fulstow Marsh Chapel and Tetney, in Lincolnshire; Hartland, in Devonshire; West Black Loft, Saddlethorpe, Yokefleet, and Bellasis, in Yorkshire; Bockleton in Shropshire; and Thickwood, in Wiltshire; the revenue of the newly purchased lands being then 897*l.* 13*s.* 9½*d.*

The gross rental, consisting of farm rents, quit rents, manorial profits, and timber and underwood, in the year ending at Michaelmas, 1815, exceeded 22,000*l.*

And it is considered, (writes Mr. Carlisle,) that there is not a better managed estate in England, whether regarding the condition of the premises, the responsibility of the tenants, or the mode of cultivation. All the estates are at rack rent, and none are let upon fines; they are generally upon twelve years' leases. The estates have increased more than double within the last twenty-seven years.

The yearly expense of the House in 1815 was about 18,000*l.*, including all outgoings.

The government of this splendid Foundation is fixed in the highest personages of the State, "and it is gratifying to notice further the wisdom of the founder, in making choice of those who are able to maintain his foundation by their interest, and to grace it with their honour." Vacancies among the governors are filled up within two months by the votes of the governors in office; but if they fail to do so within the time required, the appointment devolves on the Crown. The seal of the governors consists of Mr. Sutton's arms.

The pensioners and scholars are nominated by individual governors in their turn, according to a list made by order of assembly whenever it is necessary; and the person nominated, if he be qualified, is certain to succeed, although the vacancy should not occur until after the governor's death. The number of pensioners is limited to eighty. They are fed and lodged, and have a cloak towards their clothing; together with an allowance of 20*l.* (formerly only 14*l.* per annum,) for pocket-money. The class in society from which the poor men are taken depends entirely upon the discretion of the governor who gives his nomination. By an order made at an early period in the history of the institution it was provided that—

No rogues nor common beggars, but such poor persons as can bring good testimony of their good behaviour and soundness in religion; and such as have been servants to the king's majesty; either decrepid or old captains, either at sea or land; soldiers maimed or impotent; decayed merchantmen, fallen under decay through shipwreck, casualty of fire, or such evil accident; those that have been captives under the Turks, and such like;

should be admitted. By a recent regulation of the governors, the pensioner is required to have been a housekeeper for a certain period prior to his election. They must be, of decayed fortunes, because they are to declare their poverty upon admission; this declaration is to be under 20*l.* per annum, or under a given sum in the whole. If a pensioner dies between Christmas and Lady-Day, his successor is not admitted into the house until after Lady-Day.

According to Malcolm the pensioners seldom live more than ten years to enjoy the excellent charity provided for them, and—

Whence, (he says,) does this arise? Surely not from their mode of living. Plenty, the best of plain provisions, and cleanliness, forbid such a supposition. It is a grand and affecting sight to see the majestic hall, decorated even for royalty, with tables arranged with shining metal, supported by a large loaf to each plate, and covered by dishes smoking with excellent viands, excellently cooked, and eighty ancient, respectable, venerable men, seated, partaking of the bounties of the immortal Sutton, a bounty of nearly two hundred years' standing. If we follow those men to their apartments we find them furnished with every necessary to make them comfortable. Their age is such as to preclude a wish for excesses, nor are such permitted. Their minds are kept as quiet as possible, by every discouragement of dissension, and they are led to prayer twice in each day. Surely all this should tend to preserve health and life, even to patriarchal years.

This is a proof of the miserable state of man, who is obliged to owe his existence to many causes which are not to be controlled. Here we find him solitary in the midst of numbers. The pensioner must be old, unmarried, and desolate, before he can be admitted. He retires to his bed, and rises in the morning without a friend to converse with. He has had relations, but they are not with him; his affections wander towards them; regret amidst plenty invades his thoughts; his spirits sink, and his body wastes till death relieves him. Such is man without the society of his relatives. Yet think not, reader, I condemn those regulations expelling friends: the weary pensioner deprived of them by calamity, is here sheltered and protected. What would be his fate, had he not such an asylum!

The number of scholars upon the Foundation was originally limited to forty; but two more have been added in consequence of the improved state of the funds. They are almost entirely supported by the House, during their stay at school, very few charges falling on the parents besides those for school-books and washing their linen. They wear the academic cap, with a black gown, jacket and breeches. "They are generally the sons of gentlemen with large families and moderate fortunes, to whom an academic education is an object."

* See p. 21.

None are admitted upon the Foundation under the age of ten years nor above fourteen. The age of the child is certified by an extract from the register of baptisms in the parish where he was baptized, or if that cannot be produced, by an affidavit of the parent. The time of their continuance at school depends on the proficiency which they make in learning, but they generally proceed to the University as Exhibitioners between the ages of seventeen and nineteen. The Exhibitioners are elected by the Board of Governors after undergoing a public examination; their sufficiency being certified by the examiners, who are generally the chaplains of the Archbishop of Canterbury. The number of Exhibitions does not seem to be limited, but they are wholly confined to boys upon the Foundation, who go to any college in Oxford or Cambridge at their own option. They are allowed 80*l.* a year, for the first four years; and, if they graduate regularly, they are allowed 100*l.* a year for the next four years, upon producing certificates of residence and good behaviour to the Master of the Hospital.

Those boys who are designed for trade have an apprentice fee of sixty pounds.

In addition to those on the Foundation a large number of boys are educated at this school. The terms for board and education have been fixed by the governors at 57*l.* 12*s.* per annum. But the many extra charges generally raise that sum to about 75*l.* or 85*l.* a year. There are two large boarding-houses in Charter-House Square, kept by Masters of the School; one capable of containing about sixty, and the other about eighty or ninety boys. These boys have in each house a hall or long room, in which they remain during the day, and are admitted into their bed-rooms only at night: observing in every respect the same customs and regulations as the scholars upon the Foundation. Gentlemen who live in the immediate neighbourhood of the Charter-House have an opportunity of sending their sons to the school as day-scholars.

The Master of the School has, according to Mr. Carlisle, a salary under 245*l.* per annum, together with a house and a triennial allowance of linen. He receives no fee or emolument whatever from any of the scholars on the Foundation; and his share of the sum charged on each of the boarders is fixed by an order of the governors. He has no boys in his own house; but exercises a general control over the scholars, both of the Foundation and the boarding-houses.

The usher or second master has a salary not exceeding 160*l.* per annum, but he has the house No. 15, Charter-House-Square, and a fixed share of the sum charged for each boy's schooling. There are also two assistant masters who preside over boarding-houses.

The history of this admirable Foundation cannot be more appropriately closed than in the words of the commemoration sermon preached many years ago by Dr. Fisher, then the master of the school, at which he had been educated:—

Such is this important establishment, the pious work of one excellent man, who must be allowed to possess a foremost rank among those, who, by their well-directed acts of munificence have claims on the public gratitude as the enlightened benefactors of their country. Embracing in one comprehensive view what are the leading and prominent demands of human nature, and what are the best sources of human happiness, it is the appropriate praise of the memorable founder of this institution, that with a sagacity which is never sufficiently to be admired, and a munificence that cannot be too gratefully recorded, he has made ample provision for both. Weighing, in the balance of his judgment, the characteristic wants and the relative claims of the different stages of human life, he has selected, for the peculiar objects of his bounty, the two extremes of youth and age. Directing, in the first instance, his benevolent attention to the immediate supply of their common necessities, he has providently secured to each respective class of his distribution, the inestimable benefits of a liberal education and a religious retreat. To the furtherance of those important ends, the diffusion of knowledge and the protection of piety, the unabating efforts of his capacious mind were uniformly directed. When we behold whatever in the country is most elevated by office, most illustrious from rank, most dignified by virtue, and most ennobled by talents, compacted into one regular and consistent body for the preservation of our interests, and the administration of our affairs, are we not fortified by a security, the strongest and most incontrovertible, that no supineness can neglect, no corruption touch them; that neither a forgetfulness of the original ends of the institution, nor a perversion of its means, can shake the stability of its foundation?

THE NEW GRAMMAR SCHOOL.

JOHN W. PARKER, PUBLISHER, WEST STRAND, LONDON.

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QUEEN ELEANOR'S CROSSES.

QUEEN'S CROSS, NORTHAMPTON.

II.

We left our account of Edward I. and Queen Eleanora at the period of their progress through their French dominions on their way to assume the English crown. They landed at Dover, August 2, 1273, and were received with every demonstration of joy. In London the rich merchants showered gold and silver on the royal retinue as they passed under the windows of "the Chepe;" while both houses of parliament assembled to do honour to their king and his admired consort. The coronation took place on the 19th of the same month, when the most lavish hospitality was exercised. Successions of banquets were prepared in the Old and New Palace yards for the entertainment of all who chose to partake of them; and one feature of the coronation, as recorded in a MS. preserved by Sir Robert Cotton, is too remarkable to be omitted. At the royal feast which succeeded the coronation of Edward and his queen, King Alexander of Scotland came to do the king service, and with him came a band of a hundred knights, horsed and arrayed. "And when they were light off their horses, they let their horses go whither they would, and they that could take them had them for their own behoof." In like manner also it is said that the Earl of Pembroke and the Earl of Warren came each of them leading a horse by their hand, and a hundred of their knights did the same. "And when they were alight off their horses they let them go wherever they would, and they that could take them had them still at their liking."

The king of Scotland and the duke of Bretagne were present at the coronation of Edward and Eleanora; but Llewellyn, prince of Wales, absented himself, refusing to do homage to the English king. Five years of warfare followed this slight to the authority of Edward; and the contest was still farther embittered by the capture of the bride of Llewellyn. The vessel which was conveying this youthful lady from France, was seized by some Bristol merchantmen; but though she was the daughter of Simon de Montfort, Edward's mortal foe, whom he had slain in battle, he received her with kindness and courtesy, and consigned her to the care of his queen, with whom she resided at Windsor Castle. On her account Llewellyn at last submitted to the required homage, and his marriage with the lady Elinor Montfort took place at Worcester cathedral, where Edward gave away the bride, and the queen supported her at the altar.

The peace with Wales was, however, of short continuance. A prophecy of Merlin asserted that a prince born in Wales should be acknowledged king of the whole British island, and the bards of that land were constantly urging on Llewellyn the ignominy attending his homage paid to Edward for that which was his lawful right, and inciting him to endeavour, in his own person, to accomplish the prophecy. Taking advantage of the absence of Edward and Eleanora, who went to take possession of the provinces devolving on the latter by the death of the queen of Castile, Llewellyn suddenly invaded England, and won two or three brilliant victories at the first onset; but the return of Edward, and the fatal result of the skirmish in which the brave Llewellyn met his death, soon altered the state of things. Edward remained among the Welsh, to keep down the spirit of the people; and Eleanora, as usual, followed him in all his campaigns. In the spring of 1284, Edward took his queen to the strong fortress of Caernarvon, which he had just completed. Edward exhibited his skill and judgment in profiting by the natural advantages of this spot, which was an admirable situation for a curb on the newly conquered country. The castle and fortifications were built within the space of one year by the labour of the peasants, and at the cost of the chieftains of the country, on whom the hateful task was imposed by the conqueror. Pennant, writing in 1781, speaks of the external state of the walls and castle, as being exactly what they were in the time of Edward I. The walls are defended by a number of round towers, and have two principal gates; the east, facing the mountains: the west upon the Menai. The entrance into the castle is very august, beneath a great tower, on the front of which appears the statue of the founder, with a dagger in his hand, as if menacing his newly-acquired and unwilling subjects. The gate has four portcullises and every requisite of strength. The court is oblong. The towers are very beautiful; none of them round, but pentagonal, hexagonal, and octagonal. The Eagle tower is remarkably fine, and has the addition of three slender angular turrets, issuing from the top. To this celebrated castle did Edward bring his Eleanora; and there, in a little dark room of the Eagle tower, measuring not quite twelve feet long, by eight broad, was born Edward of Caernarvon, prince of Wales. The gate by which Queen Eleanora entered is at a vast height from the ground, and could only be approached by a drawbridge supported on masses of rock. The accommodations of the castle were probably but little suited for the entertainment of such a guest; but Eleanora could lay aside the splendid accompaniments of her royal dignity when her husband's interests demanded the sacrifice: she had already become inured to privations during her expedition to the Holy Land, and she was therefore the better fitted for her sojourn in the Eagle tower. No doubt she put in use her newly-introduced custom of hanging the walls with tapestry, indeed it is said that some marks of tenters still appear on the walls of her dreary apartment. This was the more necessary in this instance, for the chamber has no fireplace, and notwithstanding the smallness of the apartment, we may conclude that it was a chilling abode in the month of April when the young prince was born. At the time when Grose wrote his *Antiquities of England and Wales*, the cradle of the unfortunate prince was in the possession of the Rev. Mr. Ball, of Newland in Gloucestershire; to whom it descended from one of his ancestors, who attended that prince in his infancy, and to whom it became an honorary perquisite. A drawing of the cradle was made for the *London Magazine* in 1773, which appeared in the following year, together with this description.

This singular piece is made of heart of oak, whose simplicity of construction and rudeness of workmanship are visible demonstrations of the small progress that elegancy had made in ornamental decorations. On the top of the uprights are two doves; the cradle itself is pendent on two staples driven into the uprights, linked by two rings to two staples fastened to the cradle; and by them it swings. The sides and ends of the cradle are ornamented with a great variety of mouldings, whose junctions at the corners are not mitred, but cut off square without any degree of neatness, and the sides and ends fastened together by rough nails. On each side are three holes for the rockers to secure the uprights from falling; and the whole is rendered steady by cross-pieces for feet, on which it stands. Its dimensions are three feet two inches long, one foot eight inches wide at the head, and one foot five inches wide at the foot; one foot five inches deep; and from the bottom of the pillar to the top of the birds, is two feet ten inches.

The unsettled state of Wales at this period points to the reason why Eleanora was thus immured. The walls of Caernarvon Castle are about seven feet nine inches thick, and have within their thickness a convenient gallery with narrow openings for the discharge of arrows. The walls of the Eagle Tower are near two feet thicker. From its summit is a noble view of the Menai, Anglesey, and the nearer parts of the British Alps.

Edward I. was at Rhuddlan Castle when the much-desired prince was born, a native of Wales, and as it was hoped, the future recognised heir of that land. The joy with which he received the tidings, was shown by his munificent treatment of the bearer of them, Griffith Lloyd, a Welsh gentleman, whom he knighted on the spot, and presented with a most liberal donation of lands. The king immediately hastened to Caernarvon, and three days afterwards he assembled thither all the chiefs of North Wales, who came to make their final submission, and to intreat that the king would appoint them a prince who was a native of their own country, and whose native tongue was neither French nor Saxon, which they said they could not understand. Edward told them that he would immediately appoint them a prince who could neither speak French nor Saxon. This gave great satisfaction to the assembled chiefs, and they declared they would instantly accept him, provided that his character was free from reproach. Edward then presented to them his infant son, assuring them that he was just born a native of their country, that he could not speak a word of English or French, and if they pleased, the first words he uttered should be Welsh. It was with an ill grace, no doubt, and with a disappointed air that the mountain chiefs of Wales vowed fealty to this babe, instead of to a descendant of their own royal line, whom Edward's ambiguous words had led them to expect as their future ruler. Nevertheless they submitted to the appointment as best they could, and kissed the tiny hand which was to sway their sceptre. At this important era in the life of Edward and Eleanora, when by a concurrence of events, together with a bold political manœuvre on the part of Edward, the unqualified submission of the Welsh nation had been obtained, we now pause in their history to notice the illustration of the present article.

The Cross at Northampton

It would be inappropriate here to enter on the details connected with the erection of this cross. These will have their place in the narrative above entered on; but we may remark concerning its situation that it stands at the meeting of four roads, on a rising ground, at about half a mile from the town of Northampton, in the parish of Hardingston. The Society of Antiquaries give the following description of this monument:—

It is divided into three stories; the first octagonal, fourteen feet high. The sides divided by purfled finials are charged with arches of two compartments under a pointed purfled pediment. Under the arches of the compartments are hung, on foliage of different patterns, shields of arms. On the south and east sides, those of Castile and Leon, quarterly, and of Ponthieu in Picardy, single. On the north Castile and Leon, quarterly, the arms of her father, and England, single. On the north-east side, England and Ponthieu, the arms of her mother, each single. The arms on the west, south-west, south-east, and north-west sides, are entirely obliterated. From the centre mullion of each of these compartments projects in high relief an open book lying on a desk. The second story, shaped like the former, is but twelve feet high. In every other face, within a niche, under a projecting and insulated canopy with a purfled pediment terminating in a bouquet, stands a figure of the queen, about six feet high, crowned and royally habited. There remain traces of a sceptre in her right hand, while the left, perhaps, held a globe or lay on her breast, as on her monument. The habits of each figure differ from the other. The figures and ornaments are in good repair. The upper story is square, eight feet high, the sides adorned with arches, with quarterfoils in their points in relief, and under them a sun-dial, put up in 1713.

It appears that the cross, six feet in height, which crowns the monument, was added by order of the bench of justices, when the whole was under repair in 1713. The base of this beautiful structure is formed of an ascent of eight steps, each about a foot broad, and nine inches high. In the execution of this cross, the architect and the sculptor are almost equally concerned, and it has been supposed that at the time of its erection both professions were combined in the same individual. The design and execution have been ascribed by Vertue and Walpole to Peter Cavallini, a Roman sculptor, to whom they likewise give the merit of the crosses at Geddington, Waltham, &c.; but this opinion is disputed by other writers. While it must remain a matter of conjecture, who was the architect of these truly interesting structures; the peculiar styles of sculpture and architecture displayed in them are universally admitted to be admirable in their respective classes. The cross at Northampton, when perfect, must have been a beautiful and picturesque object, as it still remains to a high degree in the present day. Unfortunately it has been much disfigured by the repairs executed by officious and ignorant individuals. A large white marble tablet has been affixed to it with a long Latin inscription to commemorate a restoration of the cross, carried on by the magistracy of Northampton in 1713. They have thus injured the design and masonry of the building they professed to restore, and have spoiled the effect of the whole structure, by giving undue prominence to the account of their own performances.

Early Gray Hairs.

O'er my head, e'en yet a boy,
Care has thrown an early snow;
Care, begone! a steady joy
Soothes the heart that beats below.

Thus, though Alpine tops retain
Endless winter's hoary wreath;
Vines, and fields of golden grain,
Cheer the happy sons beneath.—Penrose.

LESSONS FROM NATURE.

On entering a gallery of original paintings, figures of wonderful excellence strike us with powerful attraction. Every person of taste and sensibility perceives instantaneously their paramount distinction; and the first emotion produced thereby in well-informed minds, is some degree of solicitude about the author; for nothing has so direct a reference to its cause, as merit of execution. Much laudable ingenuity is displayed in discriminating the different masters, ascertaining their respective eminence, pointing out the peculiar beauties of the several schools to which they belonged, the amateurs under whose auspices they studied, the correctness of their designs, their colouring and their costume. In all this minute investigation, what should we think of the critic or connoisseur who could gravely allege that all the diversified apparatus around us originates in no cause, that not one of those masterly pictures is the work of any artist whatever, and that the whole resulted, not from intelligence or design, but from blind impulse or lawless chance? So, they who survey the magnificent machinery of Nature, and more especially the wonderful phenomena of the skies, and yet can harbour a doubt or the invisible Creator, or indeed are not impressed, wherever their eyes wander or their meditations rest, with a deep sense of the ever present God, either have not the faculty of reason, or pervert it to gratify their passions, or to strengthen their impiety.

The hopes and fears which alternately expand and depress the human heart, evince our connexion with another state of being, and that our destiny is not confined to the narrow precincts of mortality. Our present condition is not stationary or in a circle, but is obviously progressive; it begins, indeed, amidst the manifold frailties of flesh and blood, but terminates in the consummations of a world to come.

The most untutored of the species is more or less conscious of a principle, an impulse or power within him, which occasionally lifts him above the sphere of his senses, and by which he endeavours to solve the phenomena, both above and about him, in a way the most obvious to his understanding. The pageantry of the Indian's idolatry, gross and sordid as it may appear to more enlightened minds, is as much an object of reverence to him, as our religious institutions are to us. The piety of Nature's uninstructed child, indeed, has this in its favour, that he adores the effect, only by a mistaken substitution of it for the cause. But our habitual inattention to the one indicates a criminal indifference to the other. He would do his duty, but he is ignorant of its nature; we know ours, but leave it undone.

It is a maxim, founded on experience and the history of the species, that in no state of the human intellect, improved or unimproved, is it ever maturely disposed, ultimately at least, to rest in present appearances. From the highest eminence of science that man ascends, another, still higher, catches the eye, and tempts his pursuit.

> **Hope springs eternal in the human breast,**
> **Man never is but always to be blest.**

There is a propensity in all our motions and exertions which bears an affinity to a higher system, which is not in unison with any known properties of matter, and which, abstracting our affections from things evanescent and momentary, is continually propelling them to such as are superior and invisible.

By man's natural turn for investigation, any object that excites his attention or stimulates inquiry is the means of improving our knowledge of the Deity. He is known by his works as certainly as any human artist can be by his. These are uniformly expressive of most important information concerning Him. From them we know much of his character, and many of his perfections. They are universal, intelligible, and unequivocal documents of who he is, what he can do, and

the relation in which he stands, as well to us as to them. And here his attributes, his intentions, his energies, and the whole character of his Divine government, are everywhere so legible, that he who runs may read his power, wisdom, and goodness.

It has, indeed, been much, and plausibly, questioned whether the discovery of one supreme intelligent Cause of all things, be the induction of reason or the result of instruction. The chief considerations on which the solution turns, are now so completely involved, and run into each so intimately, that it may not perhaps be easy to say on which side the truth lies. But the Christian dispensation has put us in possession of a clue which happily frees our minds from all the difficulties and embarrassments into which ignorance and temerity had plunged them; which has led us to the fountain-head of all true knowledge, by the guidance of which we can be no longer at any loss to account for phenomena otherwise inexplicable.

The material world has in consequence emerged from the palpable darkness in which superstition had involved it, and presents us with a striking image of its Maker, by the light reflected from that which is invisible. We henceforth regard it as a theatre on which the agency and attributes of the Almighty are conspicuously displayed, and by the simple means of which, he holds uninterrupted correspondence with the whole of his family, in all the various ways of which they are capable. Nature thus interpreted, is susceptible but of one construction. Her language, always simple and direct, is everywhere the same; and there is no nation or country on earth unfurnished with those means, by which it may be equally and clearly understood.

This we call the Theology of Nature, as the elements of it, at least, are perspicuously detailed in her works. Whatever we know of the Divinity, apart from the positive instructions he vouchsafes, is from the contrivance and design manifested in systems with which we are acquainted, the disposition and motions of the heavenly bodies, the nature of the planet we inhabit, the processes of the vegetable world, and the animal organization or mechanism.

What are these, separate or combined, but an expressive picture of their Author? and the more they are considered and comprehended, his power, wisdom, and benignity will be better understood, and will become more illustrious and impressive. It is the steady and solid conviction that he is, and that his attention to the greatest and best of his creatures is unmerited, which constitutes the basis of our hopes, and gives beauty, harmony, and interest, to the universe. Take Him out of it, and chaos comes again; but replace Him at its head, where from everlasting to everlasting He is God, then nature resumes her sweetness, and all creation smiles with joy.

Nothing but the Almighty's presence preserves all the parts of creation in unison, and gives energy and effect to that mysterious agency which connects, consolidates, and binds them into one vast comprehensive whole. It is the strength of his unseen arm which hangs them upon nothing, and by which they perpetually circulate as on invisible springs. His power protects and upholds them in their respective situations, and enables them to sustain their relations with propriety. It is by the breath of his mouth that the whole beautiful assemblage of shining worlds exists, and when he withdraws it, they are extinct. What, then, is the spacious and magnificent creation, but an expressive and majestic representation of his infinite power and exuberant love, who surveyed everything that he had made with complacency, and, behold, it was very good?

Is not immeasurable space crowded with columns to the honour of the Divine Artist? These are one and all inscribed to his name, illustrate the excellence of his perfection, and perpetuate his praise. The vast canopy of heaven may be considered more particularly as an immense area where the matchless wonders of his skill and contrivance mark an eternal exhibition, through all their spheres and evolutions, before an intelligent and astonished universe. A variety of worlds, exceeding all comprehension in number and magnitude, in which our terrestrial globe is but an atom, are stationary in their order, destiny and rotation. When, therefore, we seriously reflect how the Creator of all these things hath placed and balanced our earth in the midst of the air, and the universe as it were in the midst of nothing; how he hath hung for so many important uses those glorious lights of heaven, the sun, the moon, and the stars, and made paths in the sky for their courses;—instituted the regular circle of the seasons, summer and winter, seed-time and harvest;—how he hath stocked our earth with inhabitants, and rendered it fertile for their sustenance and accommodation; and laid the sea in heaps, that though it may overlook, yet cannot overflow the land;—who can possibly doubt the exceeding greatness of his power, the infinite resources of his wisdom, the plenitude of his goodness, and the bounty of his providence?

[Abridged from BASELEY'S *Glory of the Heavens.*]

THE art of governing the passions is more useful, and more important, than many things, in the search and pursuit of which we spend our days. Without this art, riches and health, and skill, and knowledge will give us little satisfaction; and whatsoever else we be, we can be neither happy, nor wise, nor good.—JORTIN.

TO A SNAIL.

WHERE art thou roaming to, wonderful snail,
With thy beautiful house on thy back?
Leaving behind thee a silvery trail,
On the emerald hue of thy track.

Slow is thy march, for thou needest not wings
From thy journeyings homewards to fly;
A cosmopolite, roaming yet ever at home,
Like thy wild sons of waste Araby.

Lark, that in raptures soars singing at morn,
When fatigued returns home to his nest;
Rabbit, that wanders through clover or corn,
Seeks again for his burrow to rest.

Gipsy of nature! thou wanderest free,
Not a localized being art thou;
Pitching thy tent in the lane 'neath a tree,
On the moor or the lone mountain's brow.

I meet thee at morn in my favourite walk,
By the riv'let or rose-scented hedge;
Tasting in quiet each delicate stalk,
Or careering sublime on a sedge!

Rich is the hue of thy elegant home,
Purest amber and deep glossy brown:
Pearly and smooth as a fair maiden's comb,
Where thou glidest, or upwards or down.

Beetle with burnished mail, golden and green,
And the butterfly splendidly bright—
Feeding beside thee *all* rare things are seen,
And the glow-worm doth lend thee a light.

In days of my childhood I've gathered thy bields,
And watched thy slow patient motion;—
Much musing if thou wert a native of fields,
Or palmer, foot-sore, from far ocean.

Oft when the summer-blooms, beauteous, are gone,
Scared away by the bleak wintry weather—
'Mong the dry leaves I find ye, or by an old stone,
Like a hamlet cemented together*.

Man, of his knowledge and skill all too proud,
Deepest lessons might gather from thee;
Feelings of thankfulness, heart calmly bowed,
To our gracious Creator's decree:

Might learn to confide in that wisdom sublime,
That goodness unbounded and pure,
Which launched the vast orbs on the ocean of time,
Gave the Snail a retreat so secure.——J. W.

* This is true only of the larger species of shell snail; the smallest and more beautiful species pass the winter singly

EASY LESSONS IN CHESS.

XII.

In our ninth lesson, contained in the last volume of the *Saturday Magazine*, p. 200, we stated the solution to the four problems given in previous lessons. In each of these problems check-mate was effected in only two moves, and therefore required on the part of the young student no great exertion of skill for their solution. In the same lesson we introduced a problem, No. V., in which White moving first was required to check-mate his adversary on the third move. From the numerous letters containing the correct solution with which our young chess friends have favoured us, we have reason to expect that the problem was solved without much difficulty; but as it forms part of our plan to give from time to time the solutions to all the problems contained in these lessons, we devote the present lesson to such solutions, and to the statement of two more problems.

Solution to Problem V.

WHITE.	BLACK.
1. Q. to K. R. seventh sq. chckg.	1. Kt. takes Q.
2. Kt. to K. Kt. sixth sq., chckg.	2. K. to K. Kt. square.
3. K. B. to Q. fifth square, check-mate.	

It need scarcely be observed, that at his first move Black was compelled to take the Q. with his Kt., and not with his K.; although by doing so his own piece facilitated the mate by blocking up the means of escape.

In our tenth lesson, contained in *Saturday Magazine*, Vol. XXI., p. 240, will be found Problem VI., in which White is to check-mate his adversary in three moves. On the subject of this problem a correspondent has sent us the following remarks:—

In this problem White gives check-mate in *two* instead of *three* moves as required; and it must be bad play to try to do that in *three* which can be accomplished in two moves: for example:—

1. White Q. to K. B. third square, checking. Black cannot move out of check, and can only cover by moving, 1. B. to K. Kt. fifth sq., whereupon the White Q. takes the B. and check-mates.

We have already cautioned our readers that if they fancy they see an error in the chess problems, or in the terms in which they are to be solved, to mistrust themselves rather than us. Our correspondent is perfectly right in the remark, that it is bad play to try to do that in three which can be done in two moves, but he has been a little hasty in applying this chess truth to the problem in question. If, as he proposes, the White Q. moves to K.B. third, checking, what becomes of the White Rook at K. Kt. sixth square? Black would assuredly capture it with his King, and not play so badly, as our correspondent supposes, as to interpose his B. and invite check-mate next move.

The correct solution is as follows:—

WHITE.	BLACK.
1. Q. to K. Kt. fourth sq., checking.	1. B. takes Q.
2. R. takes K. R. P., checking.	2. K. Kt. P. takes R.
3. K. B. to K. B. seventh square, check-mate.	

It will be noticed that in this problem it matters not which of the first two moves be played first.

Problem VII., contained in the same lesson, is solved thus:—

1. R. to K. Kt. fifth square, checking.	1. K. takes R.
2. Kt. to K. B. seventh sq. checking.	2. K. to K. R. fourth square.
3. K. Kt. P. two squares, checking and check-mate.	

The moves of the White remaining the same. Black might have played thus:—

	1. K. to K. R. third square.
	2. K. takes R.

In our eleventh lesson, beginning at p. 7, of the present volume, will be found Problem VIII. The solution is as follows:—

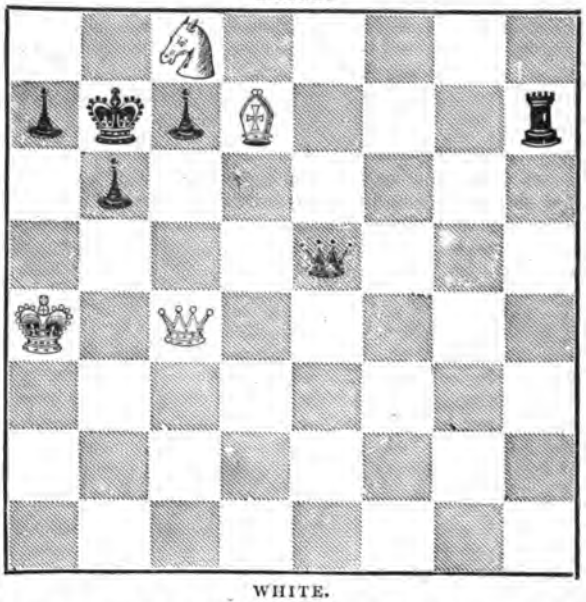
1. Kt. to K. second sq., checking by discovery.	1. K. to K. fifth square.
2. Q. to K. B. fourth square, checkg.	2. K. takes R.
3. Kt. to Q. B. square, checking and check-mate.	

Solution to Problem IX.

1. Kt. to K. Kt. fifth square, checking.	1. R. takes Kt.
2. K. R. to K. B. sixth sq. checkg.	2. K. takes K. R.
3. Q. R. to Q. sixth square, giving check-mate.	

Problem X. *White moving first is to give check-mate on the third move.*

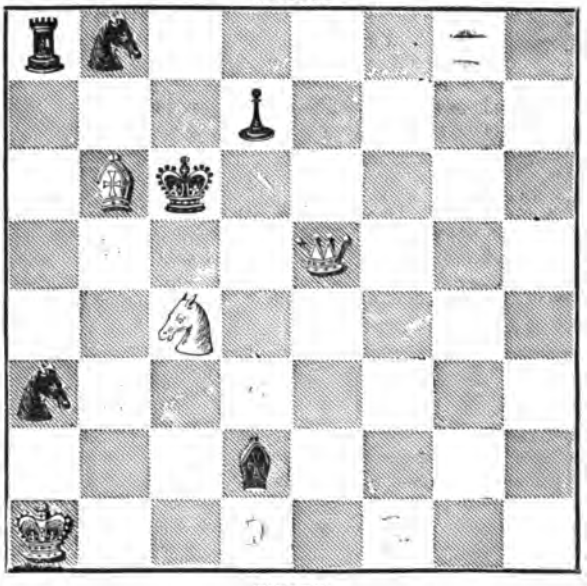
BLACK.



WHITE.

Problem XI. *White to move first, and to check-mate in three moves.*

BLACK.



WHITE.

Ah! what avail the largest gifts of Heaven,
When drooping health and spirits go amiss?
How tasteless then whatever can be given?
Health is the vital principle of bliss,
And exercise of health. In proof of this,
Behold the wretch, who slugs his life away,
Soon swallow'd in disease's sad abyss;
While he whom toil has braced, or manly play,
Has light as air each limb, each thought as clear as day.

Thomson.

A CIRCASSIAN PAIR.

I MUST give you a sketch of Mr. and Mrs. Hattav, my present host and hostess, who are a very estimable couple, and who afford the edifying spectacle of love and esteem having survived youth; the rareness of which occurs, as you may know, through people forgetting that effects spring from causes, and that if the latter be not sown the former cannot be reaped. In short, Mr. and Mrs. Hattav love and esteem each other, not only because they are man and wife, but because they each perform those things which produce love and esteem; he being a good Mussulman, a remarkably brave warrior, a kind husband, a most generous friend, a lively companion, and an active, industrious person, in both public and private affairs; and she a fond, dutiful, cheerful wife, and very clever housewife. I think they are among the best of the many good folks I have known in this country; therefore you must permit me to describe them a little. He is a very strongly, actively-formed man of about forty-five, with a very determined and keen aspect, from which gleam out his pair of fiery, reddish eyes, from on each side of his large, thick, hooked nose, like two beacon-fires from on each side of a huge bluff promontory. He is not a person with whom one may skirmish even with the wits, in a slovenly manner, for his reply is often a sudden and mortal cut or stab; and his respect is for the point, fence, and force of what is said, and not for the person of him who utters it. He is precisely the sort of a person with whom a home-spoiled fop of quality and wealth should be jostled, in order to rub off his plating and make him show his real metal. But Hattav's keen sarcastic humour is blended and tempered with great and real kindness and good-nature, and dignified by self-respect.

His invitation of me had been very pressing, and of some weeks' standing; and he no sooner entered the guest-house, where I had arrived in his absence, than he caught me in his boa-constrictor arms, thrust his big nose in my face, and gave me a kiss on each cheek. Thank Mercury, this is not a common salutation among men here! He then went and turned his wife, notwithstanding my remonstrances, out of their best chamber; which has adjoining it the only comfortable room I know of in the whole country, being weather-tight—saving the window-holes, for which he begged paper coverings—and heated by a large earthen stove to about summer temperature, which in the present bitter weather is highly agreeable. Into this (not the stove) he forthwith inducted me "scrip and scrippage," telling me it was henceforth mine; and his attention since is unwearied, keeping my room in order, trimming my pipe, keeping me company, and bidding me repeatedly tell what I choose to eat. He has also arranged for me parties for the shooting of ducks and geese with a stalking-horse; and he sent his nephew on horseback a good day's journey for a bit of leather I wanted for my coat. In respect of his nose, he says it was swelled by a blow he received in the desperate fight he and another had when hunting the elk on the Kûban.

As for the lady, she is a stout, handsome, and very lively person of about forty, well-dressed in a showy silk robe and long white muslin veil. She got introduced to me the first evening for doctorship, and came of herself the next one; sate herself beside me, and taking my hand, told me she could not stay away, as I had made her in love with me, having cured her headache by merely feeling her pulse. So much for the efficacy of imagination. Now her visits are frequent, with or without her husband's presence; and she says—"Lay by your paper; you have written enough, and I come here to be merry." He tells me, in her presence, with a serio-comic expression, highly characteristic, that "women have a very small mind," and should never be consulted in important matters; and that, as he bought and paid well for "that one," it is her duty to serve and obey him in every thing. Then she in reply catches his grizzled pate, and bows it—which never stooped to a foe—into her lap. A threat to buy a young wife is retaliated by him; which I repel by objections as to his personal beauty; and by so doing incur the common penalty of those who interfere in such skirmishes, in having both man and wife attack me as to the heretical notion that good looks should be at all deemed requisite on a man's part, provided he be brave. But his pride of her is shown by telling me that he leaves her at liberty at all times to kill a sheep or even an ox to regale visitors in his absence; to entertain them, otherwise, with the best of every thing; and to present any one with a bee-hive of honey, or what she thinks proper: and her pride of him, by her telling me that, when the great Russian force was here two years ago, instead of seeking safety as most of her female neighbours did, she went *in high spirits* to the brow of the neighbouring hill to see him fight in the valley below. They have no progeny; but the parental yearnings seem solaced by the nephews and nieces who swarm ever in this cheerful domicile. Their young Polish serf declares that he has refound in them a father and mother; evidence of which kindness I have seen; and that living could not be better, as he has with the rest meat, pastry, honey, &c. every day. Heaven grant them still a long lease of their plenty and content!—BELL'S *Residence in Circassia*.

IT is good for us to know ourselves; but the minds of other men are a sort of mirror, which reflects our own image; and you will always find that, as you know other men more, you will be the better acquainted with yourself.—HOGG.

QUARRIES OF ANCIENT SYRACUSE.

PERHAPS the most striking proofs of the magnitude of the old city of Syracuse are the enormous quarries from which the stone had been hewn in past ages, to construct the houses and temples, the dwellings and places of amusement, of the million inhabitants whom history tells us resided within the walls. One of these quarries, which is now the garden of the Capuchin convent, we examined minutely. It is a deep, wall-sided, irregular-shaped cut in the rock, said to be one hundred feet deep. At some places this huge excavation is a hundred yards broad, at others it is contracted to a tenth part of that width. The ground at the bottom is not level, but rises and falls, according, I imagine, as the piles of rubbish were moved hither and thither by the workmen. It is everywhere covered either with vegetables or flower-beds, either under the spade of the gardener, or thickly grown up with orange-trees, olives, limes, and figs, some of them absolutely like forest-trees; besides almonds, vines, pomegranates, and other trees, and flowering-shrubs, all luxuriating in the shelter of this singular excavation. The sides at most places are richly clad with a matting of ivy, it is difficult to tell how thick, which occasionally hangs down like a curtain, in front of enormous caverns, receding far back into the living rock. The principal of the convent, greatly pleased with our raptures, showed us over his garden; and was evidently flattered by our saying we had seen nothing in the world so like what we read of in the Arabian Nights.

In another quarry of still vaster dimensions, we visited the celebrated Ear of Dionysius*; where the echo is certainly very wonderful: a pistol was fired near the mouth while we stood at the inner end of the cave, and I counted the reverberations for twenty seconds. I feel it difficult to describe the solemn effect of this sound, which more nearly resembled a peal of thunder at a short, distance than anything else, but divested of the abrupt, startling, rattling sort of harsh sound which belongs to thunder. On the contrary, though very loud, the report of a pistol fired in Dionysius's Ear was rather of a soft sound, even from the first, becoming more and more mellow at every repercussion of the air.

In most of these quarries the marks of the workmen's tools are very apparent. It is even possible to tell the size and shape of many of the stones which have been cut out, and sometimes to follow the order in which they were removed. These trivial but distinct and indubitable traces of the handiwork of the ancients, carry with them, it strikes me, a peculiar sort of authenticity and unpretending truth, which bring old times more vividly before our minds than the great works of art do. For it may be almost said that the statues and temples belong to a different and higher order of beings, with whom we moderns have little resemblance. When we lose ourselves in admiration of the Venus, or the Apollo, or stand awe-struck before the Temple of Neptune at Pæstum, it is almost as difficult to bring the imagination up to the belief that we are of the same race with the men who executed these works, as it is when looking at the planet Jupiter, or at the ring of Saturn, to conceive that these stupendous bodies form an actual part of the same system to which we pigmies belong. We know by history in the one case, and by scientific demonstrations in the other, that it must be so, but it is difficult to take it all in. But the simple touch of a pickaxe on the face of the rock, in an old quarry like that of Syracuse, tells quite a different story, and one which none can doubt. We almost hear the sound ring in our ears, and half wonder that we do not see the crowds of Greek or Roman workmen labouring round about us.—HALL'S *Patchwork*.

* See *Saturday Magazine*, Vol. XIV. p. 140

ON SPEAKING MACHINES.

II.

THE first attempt made with anything like success, to produce a piece of mechanism capable of imitating vocal sounds, arose out a question proposed by the Imperial Academy of St. Petersburg, in 1779. The question, or rather questions, ran as follow:—"What is the nature and character of the sounds of the vowels A E I O U?" and "Can an instrument be constructed, like the *vox humana* pipes of the organ, which shall accurately express the sounds of the vowels?"

Professor C. G. Kratzenstein gained the prize for the best answer to these two questions. He achieved results not equal to those which have since been obtained, but sufficient to reflect credit on his industry and talent. After examining the positions of the various organs, and measuring the apertures made by the lips, teeth, &c., in the production of the different sounds, he constructed a series of tubes, which, when applied to an organ-bellows, imitated with tolerable accuracy, the five vowel-sounds required. These tubes were of the most grotesque and complicated forms; for which no reason was offered, except that experience had shown these forms to be the best adapted to the production of the sounds in question. Some of the pipes were rendered vocal by the application of vibrating reeds, like those in clarionets; while others were open in the manner of a common organ-pipe.

About the same time that Professor Kratzenstein was engaged in this inquiry, M. de Kempelen, so celebrated for his automaton chess player*, and other clever pieces of mechanism, was occupied in a more extensive investigation of the same subject. He attempted to imitate not only the vowel-sounds, but also the consonants; and his results are well worthy of our notice.

Kempelen at first entertained no hope of obtaining consonants, and if obtained of being able to unite them with vowels in the form of words. In the course of his investigations he tried a large variety of musical instruments, even horns and trumpets, with the view of discovering which of them emitted sounds approaching nearest to the human voice; but although he was aware that the reeds of hautboys, clarionets and bassoons, came nearer to the human voice than most others, and also that a reed-stop, called *vox humana* from its resemblance to the human voice, had been adapted to organs, his researches were ineffectual; for the sound of those reeds was found, on comparison, to be a very imperfect imitation of what they were intended to represent. At length, having accidentally heard the reed of a bagpipe, he conceived that it exceeded all others in this respect, and thence made it the subject of his subsequent experiments.

Having particularly studied the mechanism of the human voice, he formed an opinion that the sound A (in the Continental form, equivalent to *ah* in English, or to the *a* in the word *father*,) was the fundamental part of the voice; such opinion being probably influenced by the circumstance that this sound was one which he could imitate by a pipe with a vibrating reed attached to it. But he found himself unable to imitate any other sound, and was thereupon led to seek for contrivances of other kinds. After long study he contrived a hollow oval box, divided into halves which, by being hinged to the box, more or less resembled jaws. This box was used, not instead of, but in conjunction with, the tube; the cavity of the box being made to receive the sounds as they issued from the tube. He thus found that by varying the degree in which the box was opened or closed, he could produce the sounds A, O, OU, and an imperfect E; but no indications of I, or the German Ü.

This success prompted Kempelen to direct his attention to the consonants; and after the labour of two years he obtained from different forms of cavity, the sounds of P, M, and L. With the vowels and consonants thus obtained he could compose syllables, and such short words as *mama, papa, aula, lama, mulo*. Still he had to conquer a great difficulty, which arose from the circumstance that the first letter did not cease when the second commenced; and on attempting to procure the sounds in immediate succession, they were confounded together, the word *papa*, for instance, instead of being one word, evidently consisted of four successive sounds. He also found that the too sudden discharge of air into the tube produced a faint sound of K before every other sound, so that *aula* became *ka-ku-kl-ka;* and that sometimes an aspiration followed a consonant, giving *papa* the sound of *ph-a-ph-a*. With untiring application Kempelen surmounted these several difficulties; until he so far imitated the natural phenomena as to make one glottis and one mouth (or representatives of them) produce various sounds,—sounds, too, not only of letters, syllables, and short words, but of long words, and even sentences, such as "*opera*," "*astronomy*," "*Constantinopolis*," "*vous êtes mon ami*," "*je vous aime de tout mon cœur*," "*Leopoldus Secundus*," and others.

Without entering minutely into a description of Kempelen's apparatus, we may state that it consisted essentially of five parts: 1, a reed, to represent the human glottis; 2, an air-chest, with internal valves; 3, bellows, to represent the lungs; 4, a cavity with much complex mechanism, to represent the mouth; and 5, two apertures, to represent nostrils. The reed was a hollow square box or tube, having a thin vibratory ivory slip resting horizontally on it, and acting as a vibratory tongue. The tube was inserted at one end into the air-chest, in such a manner that a blast from the bellows set the vibratory tongue in motion, and thus produced sound. To soften the vibration, the part against which the tongue vibrated was covered with leather; and the pitch of the pipe was raised or lowered by increasing or diminishing the tension of the spring. One end of the air-chest, which was of an oblong figure, received this voice-pipe, while into the opposite end was inserted the mouth of the bellows; both apertures being guarded by leather, to prevent the unnecessary waste of air. Two smaller air-chests were placed in the larger one, each having a valve closed by the pressure of a spring, and also a round aperture adapted to receive through the side of the large air-chest a tin funnel. This funnel was so contrived as, by modifying the sounds emitted by the reed, to give the sounds of S, Z, S C H, and J. The cavity to represent the mouth was formed of elastic materials, capable of yielding to the impression of air. The two tubes intended to represent the nostrils were so contrived, that when the mouth-piece was closed, and both tubes were open, the sound of M was heard; when one was closed and the other open the sound was that of N.

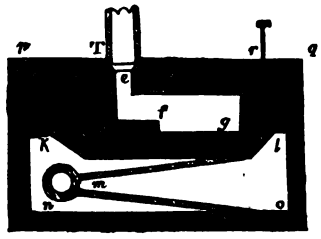
The arrangements whereby M. de Kempelen produced these effects were so complicated that a wood-cut illustration would render the subject less instead of more clear. We shall however, be able to show the principle involved by describing the apparatus employed by Mr. Willis, of Cambridge, in the course of an investigation on this subject, some years ago. His object was, in the first place, to repeat Kempelen's experiments respecting the vowels; and to this we will at present confine our remarks. It will be necessary to understand the construction, 1st, of the *air-chest*, by which a current of air is produced; 2nd, the *vibrating reed*, by which the sound is produced; and 3rd, the *cavity*, whereby the sound is modified so as to resemble vowels.

Fig. 1. represents the mechanism of the air-chest employed by Mr. Willis. A large pair of bellows kept in motion by the foot, and so constructed as to afford a constant pressure of air, is connected with a long horizontal trunk or wind-chest, of which *k l n o* is a cross section, and which is thus kept filled with condensed air. Th

* A series of articles explanatory of the automaton chess player will be found in the *Saturday Magazine*, Vol. XIX.

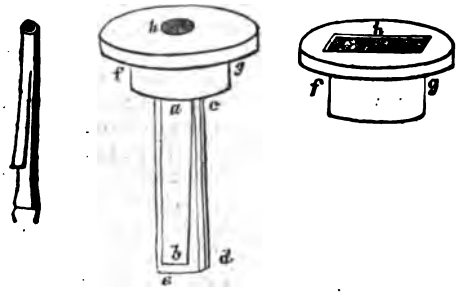
upper side of this trunk consists of a very thick board, *p k q l*, which is pierced with a number of passages similar to *e f g*, every one of which is furnished with a valve, *k l*, moving on a joint at *k*, and kept closed by a spring *m*. A wire terminating in a knob or key, *r*, passes through a hole in the upper board, and rests on

Fig. 1.



the valve, so that on pressing down this knob the valve opens, and a current of condensed air immediately rushes through the corresponding passage *e f g*, and passes into any pipe which may be fixed at the aperture *e*.

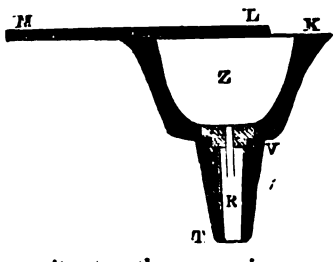
Fig. 2. Fig. 3. Fig. 4.



Let us next notice the tongue or vibrating reed, by which the current of air is made sonorous. Organ-builders are accustomed to apply the term *reed* to the hollow tube to which the tongue is fixed; a name originating probably in the mode in which common reeds were formerly cut so as to emit sounds. Many of our younger readers have, doubtless, in their field rambles, produced a rude kind of musical instrument by cutting a reed in the manner of fig. 2. Mr. Willis's reeds are formed similar to figs. 3 and 4. They are attached to blocks, *f g h*, furnished with a circular tenon, *f g*, by which they can be fitted into the different pieces of apparatus employed. In fig. 3, *a b* is a tongue of thin brass, fixed firmly at its upper extremity, *a*, but capable of vibrating freely in and out of a rectangular aperture in the side of the small brass tube or reed, *c e d*, which it very nearly fits. In fig. 4, *a b* is the tongue, attached at *a*, and capable of vibrating through an aperture, which it very nearly fits, in a brass-plate screwed to the upper surface of the block. This is the principle of vibration in some beautiful musical instruments introduced by Mr. Wheatstone.

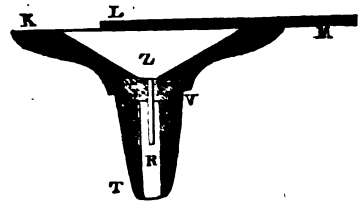
Lastly we have to speak of the cavity intended to represent the mouth, in Mr. Willis's apparatus. He employs a piece of apparatus represented in fig. 5, con-

Fig 5



sisting of a cavity z, with an opening proceeding from its lower part. Into this opening is fixed one of the reeds seen at fig. 3; so that any air which may enter from the bottom of the opening cannot penetrate into the cavity without passing through the reed, and thus setting the tongue into vibration. It was such a cavity as this that De Kempelen first employed, and Mr. Willis proceeded to use it in the following manner. He fixed the part VT of the mouth-piece into the opening *e* of the air-chest (represented in fig. 1 on a smaller scale), and sent a current of air through it. This current became sonorous by passing through the reed R; and by placing the hand in different positions in the cavity z, the sound acquired certain vocal qualities, analogous to those which result from varying the form and cavity of the mouth in speaking. Mr. Willis found, however, that by using a shallower cavity, and by placing a sliding board over it, he could produce some of the vowel sounds without inserting his hand in the cavity. Thus, for example, by putting a cover M L on the cavity, he could produce the vowels U O and A, by gradually enlarging the opening K L. His success led him to adopt the use of a shallower cavity, as in fig. 6; three inches

Fig. 6.



in diameter, and half an inch in depth. With this he found that he could produce the whole series of vowel sounds, U O A E I, by varying the aperture K L. It may be necessary to remark that the vowel sounds here alluded to are not such as are heard in England, but the continental vowels, equivalent, respectively, to *oo, o, ah, ay, ee*.

The manner in which Mr. Willis extended and simplified the results obtained by this ingenious apparatus, will be explained in another article.

IDLENESS is that which sets all the capacities of the soul wide open, to let in the evil spirit; and to give both him, and all the villanies he can bring along with him, a free reception and a full possession: whereas, on the contrary, labouriousness shuts the doors and stops all the avenues of the mind, whereby a temptation would enter, and (which is yet more) leaves no void room for it to dwell there, if by any accident it should chance to creep in so that let but the course a man takes be just, and lawful; and then the more active, still the more innocent; for action both perfects nature and ministers to grace; whereas idleness, like the rust of the soul, by its long lying still, first soils the beauty, and then eats out the strength of it.—DEAN SOUTH.

To remember happiness which cannot be restored is pain, but of a softened kind. Our recollections are unfortunately mingled with much that we deplore, and with many actions which we bitterly repent; still in the most chequered life, I firmly think there are so many little rays of sunshine to look back upon, that I do not believe any mortal (unless he had put himself out of the pale of hope) would deliberately drain a goblet of the waters of Lethe, if he had it in his power.—DICKENS

AN EVENING HYMN.

THOU, O God! this day hast spared us;
Wearied we lie down to rest;
Through the silent watches guard us,
Let no foe our sleep molest.
Lord! do Thou our guardian be,—
Sweet it is to trust in Thee.

Pilgrims here on earth, and strangers,
All we have Thy hand bestows;
Keep us, Lord! this night from dangers,
In Thy love may we repose;
And when life's short day is past,
Rest with Thee in Heaven at last.

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THE FIVE PORTS OF CHINA OPEN TO BRITISH TRADE.

NING-PO, FROM THE RIVER

III. NING-PO

On leaving Foo-choo, (the port described in our last article,) our vessels must steer along the coast in a north-easterly direction in order to arrive at *Ning-po*, the third port which we have to notice as newly opened to the British. But the numerous islands lying around this harbour, amounting, it is said, to several hundreds, and forming the Chusan group, give the character of a labyrinth to this part of the coast, and formerly caused the English in searching for Ning-po, to fail in their attempt, and to arrive instead at a spacious harbour in the island of Chusan. Ning-po is situated on the mainland, to the north of a long promontory increasing in height towards the sea, round which ships have to turn in order to gain this port. On their way thither they must go through a strait called Dumb Passage, a name given to the place by European sailors from a singular custom of the Chinese. When passing this spot the crews of Chinese junks maintain a profound silence, under the idea that there is a dragon sleeping there, who will awake at the sound of human voices and commit terrible depredations.

On entering the Ning-po river, the voyager first arrives at the town of Chin-hai, which is situated at its mouth, and is defended by its citadel, a fort built on a lofty headland jutting into the sea. The true name of this town is Tahae: it is the capital of the Heen, is built on a peninsula formed by the river on one side, and the sea on the other, against the inroads of which it is protected by a magnificent stone embankment, extending five or six miles along the coast, which is a flat plane of some extent, and considerably below the high-water mark of the sea. The western banks of the river are flat; the eastern are bounded by a ridge of high and barren-looking hills: at some distance from the banks both sides are fertile and well-cultivated, and studded with numerous villages. For the first few miles this river flows in a south-west and west direction, and then tends towards the north-west. The river in front of Chin-hai is nearly half a mile wide, with six and seven fathoms water, so as to offer excellent anchorage for ships of any size.

The town of Ning-po is situated about twelve or fourteen miles up the river, on the western or left side, at a point where the stream divides into two branches. The walls of the town are of great extent, and the suburbs cover both sides of the river. Mr. Lindsay found the streets to be broader and the shops handsomer than in any other town he had seen. He found several shops appropriated to the sale of European woollen manufactures. The British up to the year 1759 had a factory in this city, and Mr. Lindsay was anxious to obtain some information as to whether any signs or remnants existed of foreign residences, but without success. Every one appeared perfectly well aware that foreigners had traded there nearly a century before, and that the greatest advantage had been derived to the city from that circumstance. The city appeared to be densely populated, the number amounting probably to three hundred thousand souls. The river fronting the town was full of junks, mostly belonging to the province, and a good many from Fokien.

Mr. Lindsay had frequent occasion to notice the singular inaccuracy of the English and missionary charts of this part of China, which is the more remarkable when it

is considered that the English traded here during many years. There are also some discrepancies in the accounts given of the river, which can only be accounted for by supposing that the depth of water over the bar of this river has increased considerably during the last century; for not only does Du Halde in speaking of it say,—"The entrance into Ning-po is difficult, especially for large vessels, there being but fifteen feet water over the bar in the highest tides;" but a clearer proof of its not having been practicable for ships of deep burthen to enter, is given by Mr. Lindsay, in an extract from the consultations of the Company's factory at Ning-po, in a letter from Messrs. Fitzhugh, Flint, and Torin, to the officers at Canton, dated 25th January, 1757, in which they complain of the inconvenience of having their factory at Ning-po, while their ships were compelled to remain at Chusan, and the goods frequently sustained much damage and pilferage from being exposed six or eight days in the boats. To remedy this they directed the captains to see if it were possible for the ships to enter the river, and they gave it as their opinion, "that it was next to impossible;" the idea was consequently abandoned. A considerable change must therefore have taken place between that period and the time of Mr. Lindsay's visit; for that gentleman found that ships of any draught could enter and quit the river with perfect ease and safety. The Tahea rises about sixty miles inland, and is not navigable above Ning-po; it is the eastern of the three rivers called San Keang, which disembogue themselves into the gulf of Che-keang.

The great river Che-keang, which gives its name to the province, is otherwise called Tseen-tang-keang, but is not of great commercial importance. Hang-chow-foo, the capital of the province, is situated on the banks of this river, about one hundred miles above Chin-hae; but it does not appear to be a place of great trade, excepting inland, most of the commerce in sea-going junks being conducted at Ning-po and Chafoo, a town situated on the northern side of the bay, and which enjoys the monopoly of the Japan trade.

Ning-po is five miles in circumference, and the scenery in its vicinity forms some of the prettiest of Chinese landscapes. Numerous hamlets are scattered here and there, and the multitude of waters causes great fertility of soil. The country is rich in cotton, vegetables, and rice, of which last two harvests are annually obtained.

The first cavalry seen in China by Mr. Bingham's party appeared on the beach, near the entrance to Ning-po river. Their horses were strong, but small; the men were armed with bows and arrows, with handsome appointments; and upon the whole they formed a very respectable appearance. The saddle is clumsy, and the rider, using a very short stirrup, has rather a huntsman's than a soldier's seat.

In one of the islands in this vicinity the following method of taking cattle was observed:—

A party, fifty strong, was formed into one line, about ten feet apart; and ropes, consisting of stud-sail haulyards, extended from right to left, which the men held as high as their breasts, keeping it *taught*. This line reached nearly across the island, by which means the herd were driven down to a point of land, where they faced their pursuers, bellowing and tearing up the ground with their feet. At length, headed by a tremendous black bull, they charged the centre of the line. The extremities of the rope being kept *taught*, the foremost ones fell over it, when a rush was made on them, and before they could recover their legs, they were firmly tied with spun yarn. In this manner from five to six were caught at a *haul*, when having a rope secured round the horns, and another to one of their hind legs, the lashings were cast off, and they were worked down to the boat.

Among the islands of the Chusan archipelago, lying to the east of Ning-po, Chusan itself is the most important. This island is described as a miniature likeness of a vast chain of mountains; small streams flow from its central heights, and pass between the hills, which separate as they approach the sea. These hills form wide and extensive valleys, where boundary-walls and embankments preserve large alluvial plains. It lies off the centre of the Chinese coast, and becomes the key to the northern and southern trade; and from its approximation to the two great rivers, *Yang tse kiang* and *Hoang-ho*, is a most admirable position for becoming a general emporium of trade.

Timber is scarce; but the tallow tree is found in abundance, and several manufactories of candles were observed in the city and suburbs. These candles are of various colours, and have a thin outer coating of wax. The wick is large and coarse, being generally of rush; and the candles do not give a very powerful light. The island produces wheat, buckwheat, rice, millet, Indian corn, barley, sugar-cane, sweet potatoes, spinach, beans, bringals, onions, carrots, yams, lettuce, turnips, ginger, very fine rhubarb, tobacco, peas, peaches, plums, oranges, limes, loquats, the arbutus, a kind of cherry, a coarse kind of tea, indigo, and cotton. Mr. Bingham also speaks of a vegetable resembling endive, which when boiled had the flavour of sea-kale. Also, of a fruit about the size of an apple, of a bright yellow colour, and delicious flavour, the pulp of which, when perfectly ripe, melted in the mouth. It had from four to five seeds, resembling tamarind stones; the stalk was formed and attached to the fruit like that of the potato-apple. The plant on which it grew appeared like a species of melon.

Most abundant crops are produced on this island, and the land is never allowed to remain idle. Of kitchen vegetables it will produce three crops in a year. The land is manured highly by a liquid preparation with which each plant is constantly and copiously supplied Horns, bones, hair, and all kinds of substances convertible into manure, are carefully husbanded. Even the shavings of the head are kept for this purpose, and form no inconsiderable portion. Hundreds of millions in this vast empire have more than half the head closely shaved, the upper classes daily, and the lower as often as they can afford it.

Bricks, pans, and tiles are manufactured in Chusan from a fine blue clay which is plentiful there. When burnt this clay retains its original colour, and emits a fine metallic sound. When pounded, the burnt clay gives an admirable polish to brass-work. The means of conveyance in the island are by manual labour, the roads being little better than footpaths, and wheeled vehicles unknown.

Tinghai is the capital of Chusan, and the valley in which this city is situated has an embankment facing the sea, of full two miles in extent. The valley extends three or four miles into the gorge of the hills, and is principally under rice cultivation, though cotton, maize, beans, bringals, &c., are grown in small patches. Every spot on the slope of the hills, capable of cultivation, is covered with yams and sweet potatoes. This valley is watered by a large stream from the east; and about a mile before it reaches the sea there is a sluice, by closing which a large quantity of water is directed into various canals which intersect the valley, thus forming an easy means of irrigation and communication. At the point where this sluice is situated a good stone bridge crosses the stream. There are other bridges in this valley, most of which are formed of three blocks of stone or rather slabs, the centre piece lying parallel to the water, whilst the one on each side slants upwards from the bank, resting at one end on the land, and at the other dovetailed into the centre stone. They are often formed of single slabs of granite, from ten to twelve feet in length, and four in breadth. The whole space of these flat lands is generally covered with water, or is in such a damp muddy state as to render it unpleasant to cross the fields:

so that the passenger must confine himself to the narrow causeways by which they are divided, and these seldom exceed three or four feet in breadth, the centres of which are flagged with granite, affording a dry and comfortable foot-path.

The streets are narrow, ill-constructed, and dirty, with sewers running down the centre and discharging their contents into the canals. Every vacant corner in the streets is occupied by immense earthenware jars, into which is thrown every description of animal and vegetable filth which can in any way be used as manure for the neighbouring lands.

The temples and principal buildings are constructed of brick or stone, covered with cement: the houses are mostly of wood, beautifully varnished and polished on the outside; and the roofs are the most picturesque part of the buildings. Many of the respectable houses have pretty gardens attached to them, with a high wall shutting them out entirely from the town. The interiors of some of the houses were beautifully furnished and carved.

This city has a celebrated Joss-House. The word *joss* among the Chinese, may be translated to mean *idol*, and we may here abridge Mr. Bingham's account of the great temple or joss-house at Tinghai. On either side of the large and deep gateway which forms the entrance to this temple, is a seated colossal figure, protected by railings. Within is a large open quadrangle, one side of which is appropriated to the dormitories of the priests, and the other consists of a long narrow apartment with altars before three of their gods, which occupy arm-chairs, having elegant lanterns suspended before them. The first represents the Chinese Morpheus, and the countenance expresses perfect repose. The second is the goddess Teënhow, queen of Heaven. The third is a male figure with eight arms. The fourth side of the quadrangle is occupied by the temple. No sooner do you step clear of the screen which is before the door, than you are struck with the magnificence of the carving and the colossal Budha seated on the lotus flower. The figure in its sitting posture is fifteen feet high. On its right and left are two others, the whole representing the triad or three precious Budhas. The figures are gilt, and behind them are mirrors of *pe-tung*, or white copper, which when polished is not easily distinguishable from silver. Figures of thirty of the disciples of Budha also adorn this temple. They are as large as life, and richly gilt. They form good specimens of the fine arts in China: the play of human passions is well expressed in their countenances, and although too corpulent to suit our ideas of proportion, they are true to the Chinese standard of beauty.

One of these figures was that of a female with a glory round her head, and a child apparently issuing from the centre of her bosom. Before these figures is an altar, covered with small but well executed figures of Chinese; at the back of which is a lofty grotto, constructed of pieces of rock. On the projections of the grotto are numerous groups of figures which have the appearance of cherubim as represented by our village sculptors.

I am inclined to think from this (adds Mr. Bingham) and the glory round the female's head, that the figures of the Virgin and angels, formerly taken to China by the Jesuit missionaries, have led to a mixture of the Christian with the Chinese worship. I was much shocked at Macao by seeing the cross with our blessed Saviour on it, and also representations of the Virgin Mary, and of Roman Catholic saints, for sale, and mixed up with josses in the Chinese shops.

Before the principal image in the temple above described, there was a massively carved table with jars on it containing fine blue earth or clay, into which the *joss-sticks* (a sort of pastille) are fixed. These sticks are always kept burning in the temples. There were also round vases full of fortune-telling sticks, which are flat pieces of bamboo, painted with vermilion, and having Chinese numbers and characters on them. If a Chinaman is about to set out on a journey, to make a purchase, or perform any other transaction of life, he takes out one of these sticks; when by the characters on it, he is referred to a leaf of some of the small books which hang up in the temple, and by what he there reads he decides on giving up or persevering in his intended act.

But, according to Lord Jocelyn, the Chinese, so far as these joss-houses are concerned, show very little respect for their religion. The mandarins and travellers of all descriptions use them as caravanserais on their journeys; the mandarins, indeed, if their rank is superior to the joss's as a god, place the latter outside the building during their sojourn.

The Temple of Confucius at Tinghai is described as occupying a most romantic situation, and as being embowered in trees. The dry masonry of the wall is a beautiful sort of mosaic work, so admirably executed that the point of a fine knife cannot be introduced into the interstices of the stones.

At Tinghai these were three arsenals, containing cannon-balls, bows and arrows, flags, and clothing for the troops. Great regularity and neatness prevailed in each of these departments; the different description of shot being in separate compartments, while the dresses were neatly labelled and packed into presses. These dresses consisted of large loose jackets thickly padded with cotton, and having the inside of the breast closely inlaid with thin scales of iron so as to be at that part perfectly ball-proof. The rockets found in the arsenal were mere childish weapons, in size about equal to a two-ounce rocket, with a small iron barb at the end. The guns were of the most miserable description, but curious from their extraordinary shape and antiquity; several were mere bars of iron hooped together. Some of these arms were sent to England as trophies.

TEMPERANCE is a virtue, which casts the truest lustre upon the person it is lodged in, and has the most general influence upon all other particular virtues of any that the soul of man is capable of; indeed so general, that there is hardly any noble quality or endowment of the mind, but must own temperance either for its parent or its nurse: it is the greatest strengthener and clearer of reason, and the best preparer of it for religion, the sister of prudence, and the handmaid to devotion.—DEAN SOUTH.

TO THE VIOLET.

OH! I would call thee sister, Violet!
For thou like me art poor and lowly-minded;
Shunning the crowds enthralled in folly's net,
By fashion's glare, and wealth's vain splendours blinded.

With anxious care thy own sweet virtues tending;
Unmindful that no fame shall tell thy worth;
With calm content thy life in goodness spending,
For its own sake—meek, modest child of earth!

In shady lanes deep hiding out of sight;
Blessing with fragrance grey decrepid trees;
That, muffled o'er with ivy, darkly bright,
Nod their old heads fantastic in the breeze.

The peasant's children love thee, peeping round,
Linked hand in hand, to find thee, "bonnie gem;"
And smile with joy, and kiss thy buds when found,
Thou art so very sweet, so passing dear to them

Give me thy goodness, Violet; teach my heart
The firm resolve to bless my fellow-man;
Nor slothful live, but act like thee the part
Our God assigns in his omniscient plan.

For what is life unblest with virtue's power,
Or high or humble its possessor's lot:
It fades away as doth a scentless flower,
Loathing itself, unloved, and soon forgot.

But virtue does not die; its memory sweet,
In poor men's hearts enshrined and cherished here;
Itself refined; for "God's own temple meet,"
Radiant with beauty blooms for ever there.——J. W.

SPEAKING MACHINES.

III.

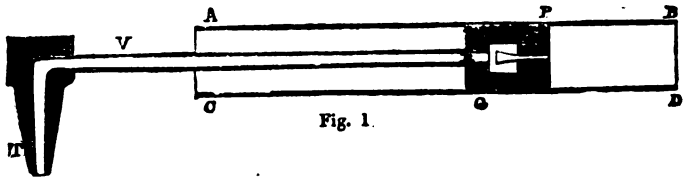


Fig. 1.

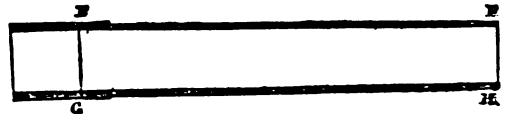


Fig. 2.

IN resuming our notice of Mr. Willis's interesting researches into the production of the vowel sounds, it may be well to recall attention to the apparatus formerly described. All such pieces of mechanism, whether intended to imitate vowel sounds alone, or consonants as well as vowels, consist essentially of three parts:—1. An air-chest to furnish a constant supply of air so far condensed as to form a current when exit is allowed:—2. An elastic plate or tongue, capable of being set into vibration by a current of air, which is thus made sonorous:—and 3. A variable cavity to produce those modifications in the sound which the mouth produces in man. Numerous as may be the minor arrangements, these three form the main elements employed.

When Mr. Willis found that a cavity of variable diameter and depth produced different vowel sounds, he determined to try cylindrical tubes; and the experiments produced some very remarkable results. He employed an air-chest and a vibrating reed, similar to those described in the last article; but his other apparatus was different, and is shewn in figures 1 and 2. T V is a tube bent at right angles, and connected with the air-chest at the extremity T; it terminates in a wooden piston P Q, provided with a socket for the reception of the reed R, which is represented in its place. A piece of drawn telescope-tube, A B C D, is fitted to the piston; the latter being so leathered as, on the one hand, to be air-tight, and yet to allow the tube to be drawn backwards and forwards, as a means of altering the length of the portion P B beyond the reed. There are other tubes, E F G H, (fig. 2,) of the same diameter as A B C D, furnished with sockets at E G which fit on to B D, and their lengths are different multiples of A B. The tube A B C D is about eighteen inches long, and an inch and a quarter in diameter.

By fitting a reed to the piston, therefore, and by thrusting the piston to different depths in the tube or series of tubes, Mr. Willis was able to test the effect produced by the tube on the vocal quality of the sound emitted by the reed. It was found that a successive lengthening of the part of the tube beyond the reed changed the vowel in a singular manner. The first vowel obtained was I (continental); then an increase of length changed it to E; afterwards to A, to O, and lastly, to U. Then, still farther increasing the length, the same series occurred, but *in inverse order*, viz. U O A E I. After this, another lengthening of the tube led to the production of a third series, similar to the first; and so on to a still further degree; but each repetition being less distinct than that which preceded it. The nature of the result may be seen from the annexed series, where the black line may represent the

I E A O U	U O A E I	I E A O U	U O A E I	I E A O U
•	•	•	•	•	•
a	*b*	*c*	*d*	*e*	*f*

varying length of the tube, and the letters represent the vowel sounds heard when the tube was of the length there indicated. It will be seen that the I and E are closer together than the E and A, the E and A closer than the A and O, and these latter closer than the O and U; that is, the lengths of tube for producing I and E are nearly the same, whereas the lengths for O and U differ more considerably. There are points or nodes, *a b c d e f*, where the series seems to terminate, preparatory to a regression of vowels as the length is increased.

This result is exceedingly curious, and when viewed in connexion with the doctrine of musical sounds, leads to analogies which may at some future time elicit valuable laws. It is pretty generally known, that when a vibrating string, or a column of air, is twice, thrice, or any other multiple, as long as another string or column, the resulting sounds are so nearly alike in character that they are denoted by the same musical character, although placed in different octaves. Now something like this is observable in Mr. Willis's results. Any multiple of the lengths of tube producing one series of vowels, produced a repetition of the same series. The analogy is observable still farther, for it was found that when a reed was employed yielding a higher tone, the distances of the nodal points *a b c*, &c., were shorter, but yet the series were formed the same as before. It was found that the distance *a b*, &c., varied exactly with the acuteness of pitch, and corresponded with the length of half a wave of sound producing the tone in question; that is, the velocity of sound per second (1125 feet), divided by the number of vibrations persecond, gives the length of a wave of sound, equal in each case to the double of *a b*.

When the pitch of the reed is very acute, some of the vowels were found to be unattainable. The vowel U, for instance, depends on a certain length of tube, combined with a certain distance between the points *a b*; and if this distance be very small, (which it is when the tone is acute,) the proper length for U cannot be obtained. In like manner, if still higher notes were produced by the reed, more of the vowels would be rendered inaudible. This, as Mr. Willis remarks, is exactly the case in the human voice; female singers being unable to produce U and O in the higher notes of their voice. The natural sound of the reed, unconnected with the tube, seems to be something like that of *u* in the word *but*; from which it gradually changes into the sound of long *u* heard in *boot*, going probably through the intermediate sound heard in *book*.

Mr. Willis found that cylinders of the same length gave the same vowel, whatever were their diameter and figure, provided the reed yielded the same tone.

One of the most remarkable results of these experiments is the obtaining a kind of numerical measure of vocal sounds; indeed Mr. Willis expresses a belief that we shall eventually be able to furnish philologists and grammarians with a correct measure for the shades of difference in the pronunciation of the vowels by different nations. For example:—When a reed is vibrating in one of the pipes, and the length of pipe beyond the piston is made to vary by imperceptible degrees, the sound assumes the character of all the several vowels in succession, as the pipe obtains those particular lengths necessary for the vowel sounds. This length is not a varying and uncertain quantity; it appears to be tolerably fixed for every vowel, as far as the ear can detect one vowel from the slight shades whereby it melts into another; for it must be remembered that the vowels, in these experiments, do not succeed each other by sudden leaps, but glide one into the other. The sound of *o*, such as is heard in the word *no*, Mr. Willis found to result when the length of pipe was a little more than

Fig. 3.

Fig. 4.

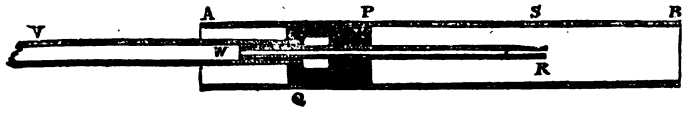
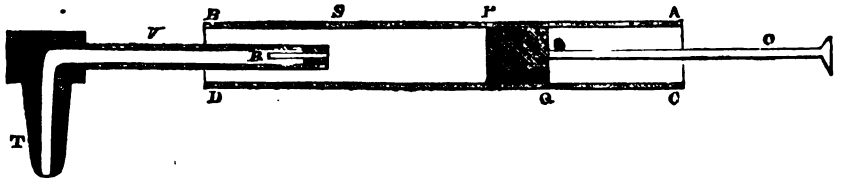


Fig. 5.



four inches and a half; and that the other lengths were as follows:—

see	0·38
pet	0· 6
pay	1· 0
paa	1· 8
part	2· 2
paw	3·05
nought	3· 8
no	4· 7
but, *boot*	indefinite.

That is, when the instrument yielded a vowel sound similar to that of *a* in *pay*, the length of tube beyond the piston was one inch; when it yielded the sound of *aa* in *paa*, it was nearly two inches; when that of *a* in *part*, rather more than two inches; when that of *ou* in *nought*, nearly four inches; and so on. It will be seen that the above ten words give the various vowel sounds, and also the intermediate sounds where one vowel blends into another. If the whole ten be repeated very rapidly, it will be seen how the cavity of the mouth becomes gradually elongated by the protrusion of the lips, analogous in some respects to the lengthening of the tube. The mode in which this table might possibly aid the researches of persons engaged on languages, may be thus illustrated. Suppose it were desired to compare the modes in which two nations were accustomed to sound the vowel *a*; if we could say that one gave the sound 1·0, and the other the sound 1·8, (alluding to the length of tube in inches, for producing those sounds), we should have a numerical measure capable of very exact comparison, much more general and philosophical than any modes of comparison now in use.

The circumstance, that any peculiar vowel sound is apparently connected with some particular elevation of pitch, if found to be generally true, may hereafter lead to important results in the science of music, and of sound generally. Mr. Willis remarks:—

This vowel quality may be detected to a certain degree in simple musical sounds; the high squeaking notes of the organ or violin speak plainly I, the deep bass notes U; and in running rapidly backwards and forwards through the intermediate notes, we seem to hear the series U, O, A, E, I—I, E, A, O, U.

Kempelen seems to have had an indistinct appreciation of something of the kind, for he says:—

It seems to me, that when I pronounce the different vowels on a note of uniform pitch, they appear to have a different character to the ear, and to possess a sort of *melody*; which, however, I am at the same time well aware cannot result except from a variation of pitch.

Mr. Willis extended his experiments, with a view of determining how far the vowel sound was affected by varying the distance between the air-chest and the reed, a space called by him the *porte-vent*. Fig. 3 represents a tube such as was before used, but in this a piston M N was inserted, very nearly equal to the diameter of the tube, and capable of being moved to and fro by the handle *o*. When this was done, Mr. Willis found the sound of the reed to continue without interruption, putting on, but rather less distinctly than before, the different vowel qualities, corresponding to the length of tube B N between the end of the piston and the mouth, whatever were the length of P B; that is, the portion of tube nearest the mouth, and not the portion between the piston and the reed, determined the vowel.

In another form of experiment, fig. 4, the reed R, instead of being inserted into the piston as in former cases, was fixed to the end of a slender tube W R, made to slide air-tight through a collar of leather attached to the piston; so that the length P S admitted of alteration at pleasure. It was then found that the vowel-sounds still depended on the length P B; that is, on the length of tube from the piston to the mouth, the same as in the former two cases.

In another modification, fig. 5, the reed was attached to the end of a *porte-vent*, T V R, and presented to the tube A B C D, furnished with a solid piston P Q. It was found that by drawing the piston in and out by the handle *o*, the vowels depended entirely on the length P B, between the piston and the mouth. In every case, therefore, the vowel quality seemed to depend upon this open portion of the tube, or whatever part of it the reed was situated, and whether it was more or less distant from the air-chest.

Mr. Willis's researches did not extend to the production of consonants, since his object was to place on philosophical grounds the causes which regulate the production of vowels. We are not aware that any more recent investigations have been made into this matter; but we join in the opinion that,

before another century is completed, a talking and singing machine will be numbered among the conquests of science; so that the utterance or pronunciation of modern languages will be conveyed not only to the eye, but also to the ear of posterity. Had the ancients possessed the means of transmitting such definite sounds, the civilized world would still have responded in sympathetic notes at the distance of many ages.

Oh! let the steps of youth be cautious,
How they advance into a dangerous world;
Our duty only can conduct us safe.
Our passions are seducers: but of all
The strongest Love. He first approaches us
In childish play, wantoning in our walks;
If heedlessly we wander after him,
As he will pick out all the dancing-way,
We're lost, and hardly to return again.
We should take warning: he is painted blind,
To show us, if we fondly follow him,
The precipices we may fall into.
Therefore let Virtue take him by
Directed so, he leads to certain

SKETCHES OF IRISH MANNERS AND CUSTOMS.

IX.

WE have lately discovered that we are living in the neighbourhood of a "station," and one of high repute with the Catholic peasantry for sovereign efficacy in all sorts of diseases. We came one day upon a sort of little ditch on the side of a pretty sharp declivity, and on the bank were two very queer holes in the dark stone, one of the shape and size of a small bowl, the other as if it had served for the mould of a middle-sized saucepan. In the bowl, saith the legend, St. Patrick leant his elbow, and the saucepan received his knee; and forthwith, the stones acquired their present shape, and their miraculous power which they communicate to the water that is put into them. A little tin can lay on the bank, and the people fill the stone holes from the water in the ditch, which is quite pure, and then bathe any afflicted part three times. Monday, Thursday, and Friday are the three proper days. Prayers are to be recited at the same time, and recovery is certain.

"But ye must have the faith, lady dear," said the good woman who was telling me these wonders. "Sure I seen the road all throng wi' kiars (cars), and horses, and people, an' they all got well. There was one boy brought on a kiar,—a dacent boy he was,—an' all helpless, an' he bathed and prayed, an' if he did, sure he walked back to the kiar. I seen him meself; och! an' many more, many more."

"Well, now," said I, "here is a little wart on my finger,—do you mean to say that the water will cure it?"

"Troth do I, but ye must be sure to say a prayer as ye dip it in, an' if ye have faith, ye'll sartainly be cured."

I cannot say much for my faith, but I do think there is some solvent property in the water, for the wart certainly decreased upon two dips, and I suspect would have disappeared had I persevered, which the distance prevented.

Near this station are the remains of an old altar of rough masonry, with an altar-piece, which appears to me to be curious. It is a large oval medallion let into the masonry, perhaps four and a half or five feet in circumference. It is of a dark grey fine-grained stone, like fine slate, and it is said that it came from Scotland. It has a neat margin in lines some three inches wide; in the centre is a perfect and well relieved three-quarter figure of our Saviour on the cross; the head is turned up with a remarkable expression of suffering. On the shoulders rest the feet of a figure with very large wings extended from the shoulders, and forming a soft of arch over the Saviour's head. The arms and body of this figure (meant, I suppose, for the Holy Spirit) are very much defaced; the head is distinct, but not the features. There is a legend round the lower part of the medallion, and some people say they can make it out, but as I could not, I shall say nothing about it. There are no ruins, no fragments of walls, or anything to indicate a regular place of worship, and the excellent workmanship of the medallion is in strange contrast with the rude masonry supporting it. Young oaks are growing out of the stonework, and form a sort of bower for the altar, and the whole is very picturesque. It is situated half way up a steep wild broken hill, and commands the glen for a considerable distance on each side. Under what circumstances of fear and peril the worshippers at that wild altar may have offered up their prayers! The people about know nothing of its story.

One of the small peculiarities here is that the women never will describe the distance by miles, but they ask if I know such a place. "Yes." "Well, dear, then it's convanient to that." The other day I asked a woman where she lived? She slowly turned round till she faced Tieve buli, or Tieve ouli, as some people say it ought to be spelt, "D'ye see that white smoke curling up the mountain side?" "Yes," said I, and indeed the effect was so pretty that I had been admiring it for some time. "Well then, dear, it's just by there it 'ill be." An Englishwoman would have said, "At such a place, three or four miles off," in a moment. The men prefer giving the same sort of answer, but they will give distances in miles if they are pressed.

I have been surprised at the excellence of many of what we should call cross roads, and they are so numerous that they are like veins all over the country; some are only bridle roads, but the majority are very good for cars. I suspect they are originally better made than in England, and being so high and hard, and no very heavy weights passing over them, they last a very long time. Many of them were great thoroughfares in their day; superseded by a new line, which has again yielded to a newer. It is often amusing to hear "the new road," and "the old road," and "the ould auncient road," and "the very old road that *I* can remember," all discussed. In my small Irish experience I am acquainted with three generations of roads on the same line, each extremely advantageous to the public, and in its formation extremely beneficial to the local poor.

There is an excellent and interesting road from Glenarm right inland to Brushane, skirting above Glenarm Park, and commanding the whole glen, with its beautiful river, woods, and glades. The mountain on the other side partially planted, and then very purple and bare, the Castle, the village, and the sea, terminating the view at one end, and lines of blue misty mountains being the barrier at the other end of the glen; and all this is presented in the happiest manner to the traveller as he winds up the mountain on the right side of the glen. For some miles after gaining a sort of high tableland, the road is very wild, amongst turf-bogs and hills. One of those tracts, that are strictly Irish, and with the rich browns and purples in which they excel, and occasional nests of cabins, and groups of picturesque figures, always please me very much. By degrees we got into cultivation, and had our old acquaintance Slamish for our companion, but under very improved circumstances; for instead of the table-head he wore when we first saw him on the Ballymena road, he presented himself as a beautiful sharp-pointed cone, as fine a mountain in miniature as could be seen. The lower part rich in corn and pasture, then much fine timber, increasing into the rich woods and plantations of Cleggan, a shooting lodge of Lord O'Neill's, which cover a very large district. Just at the entrance of Brushane we passed Tullamore Lodge, another seat of Lord O'Neill's; the house cannot be seen from the road. The woods are very fine; indeed, from Cleggan to Tullamore, though not, I believe, all one property, is almost one wood of various thickness and beauty, on the right hand side. Brushane is a poor place, abounding in public-houses, and with the distinction of a race-course, which is now useless, Lord O'Neill, the landlord, refusing the people permission to have races, from the pernicious effects they used to have on the morals of the people. I wish all proprietors of race-grounds would shew as much disinterestedness and benevolence. Our way led us through Ballymena to Randalstown, which we found remarkably neat, with a handsome church and good organ. We proceeded to Toome by a most beautiful road, the steep hills giving us exquisite views of Lough Neagh and the Antrim hills. The mountains tumbled about finely from the Lough to the sea on the north, with the wavy cultivated grounds, and splendid woods of the Shane's Castle domain, and on the other side we had a fine sweeping country, the north-western end of Lough Neagh and the river Ban, which combines it with the very pretty Lough Beg, and some fine chains of Donegal Mountains. I never saw a succession of more charming views.

Finding Raymond Cottage was shewn, we went there

from Toome. It is another property of the Lords O'Neill, and is a low thatched and ivied cottage, embosomed in noble trees, with only a lawn and a thick border of trees between it and Lough Beg. Appearing very small, the cottage possesses considerable accommodation, and is as sweet a retreat as could be wished. Toome is a very small but neat place, with a very long and handsome bridge, which, from the appearance of the river, and the low marshy land, must be very needful in the winter.

We had now been journeying many long miles upon the O'Neill estates,—indeed, were feeling very much like the man in the old story of *Je n'entends pas*, who owned everything, and we were now nearing the object of our little excursion,—seeing as much of Shane's Castle as the liberality of the present lord has thrown open to the public, and with the most kindly concern for the comfort of those admitted. When we arrived at the appointed spot, our horses were taken to the stable recently erected purposely for such pleasure-seekers as ourselves. Our baskets were taken into a nice pretty room, in a beautiful sort of log-house, called the Pic-nic Lodge, and the neat civil man who took charge of them told us he could boil our potatoes in a little kitchen, built expressly for the use of such visitors. When to our surprise and comfort all these matters were thus arranged I sat down on the soft sod and enjoyed the lovely view, and I certainly thought Lord O'Neill's admiration of his beautiful place could not exceed mine. There lay Lough Neagh at the foot of the steep little bank on which I sat, rolling his white crested waves in the bright sunshine, as blue and gleaming as the sea. Fine trees and lofty pines rose around me: the Antrim hills, and the woods of the Massarene Deer-Park were on my left: then the hills and woods and fields melted away in blue haze to the south, and for a long distance the water was our pioneer till we swept round to the far distant parts of the Shane's Castle domain on the right.

After enjoying this scene for some time we proceeded by a nice path through the trees by the side of the Lough to another very pretty root-house, where the bright view seen through the dark arches acting like a frame to it, has a charming effect. Our path led us to the ruins of the old castle, burnt down some years ago by accident. Enough remains to show that it was a spacious and stately edifice, worthy of the noble domain: it is on the shore of Lough Neagh, with a very fine terrace, with a wall and embrasures, and twenty-one twelve pounders mounted; at one end of the terrace is a tower, with a staircase descending to the lake. Extensive additions to the castle were in progress at the time of the disaster; they were immediately suspended, and, in their unfinished condition add to the desolate appearance. A very fine conservatory, opening from these new buildings, is finished and well filled, and contrasts strangely with the ruins around it. We scrambled over the broken ground down to the immense vaults under the castle, wide enough and high enough to drive a large carriage, the masonry excellent. The vault we were conducted along had various branches from it, and gave us much more idea of the great extent of the castle than the appearance above had done; it brought us out on the edge of the Lough on the side of the tower.

Our next point was the old burying-ground of the O'Neills, sometime disused and quite overgrown. The chapel is very small, and the whole thing brought the description of the chapel at Canges, in *Roderick the Goth*, very strongly to my mind. Over the door is an iron plate with the names of more generations of O'Neills than I can attempt to repeat; we could not get in, which I had rather a fancy to do, especially after seeing the mouth of the subterraneous passage by which the funeral processions passed from the castle to the grave.

The present house is not shown. After the fire, the coach-house and stables were fitted up as a temporary dwelling, but improvements took place, an excellent comfortable mansion was arranged, and has continued the residence of the Lords O'Neill. The various courtyards for stables, byre, pigs, ricks, &c., are remarkably large and capitally arranged; the byre particularly pleased me. Thirty-three beautiful cows and a very fine bull were each in their stall, well-groomed, well-littered, the stalls nicely painted, the byre well-paved, well-lit, and as neat and clean as a pet stable. Each cow's name was over her stall, and the complete order of everything was a perfect treat to my tidy tastes.

The gardens and pleasure-grounds are very extensive and beautifully laid out. The wall-fruit was a very pretty sight, from the abundant crops, and the perfection of the training and pruning. The hot-houses were equally well managed; and in one that was very large the grapes hung with a profusion of bunch and berry which I never saw but in the Hampton Court vine. From a long berceau walk and extensive nursery-ground we came out on the road, in the vicinity of the Pic-nic Lodge, got our carriage, and drove about the park, which throughout is beautiful, and daily improving from the judicious openings and clearings which are making. A fine stream, the main water, runs through the park into the lake, and the recent openings let in charming reaches of the stream, with rich woods feathering to the water, or glades with cattle on the banks; a very pretty boat, cutter-rigged, is kept, and a fine steamer, most elegantly fitted up, lies in the river: the present lord not liking water-excursions, we were told the crew of the steamer had been dismissed.

The deer-park is charming: the ground is so varied, the timber, whether single, clumped, or in masses, is so picturesque, the large herds of deer are in such perfect keeping with the scene, and the bright line of Lough Neagh, and the blue hills beyond the town of Antrim, caught or lost as our grassy road rose or turned, gave fresh beauty to it every moment. Any one conversant with Gilpin's delightful forest scenes may imagine the style of the beauty. I had never seen anything before that pleased me so much as the chace at Chatsworth, on the Bakewell side, but the deer-park at Shane's Castle has all the extent, the wildness and the varied outline, with richer timber, brighter verdure, and the life and spirit which deer and water always give to a landscape, and is indeed enchanting. We were allowed to see the deer-park cottage, occupied by the deer-keeper; it is surrounded by magnificent trees, and is on a snug lawn inclosed from the park, it is a very pretty edifice in the old English style, and accords perfectly with the scene around it.

We lingered long in the park, watching the declining sun with the deep shadows and rich lights, till the whole became a soft gray, and we departed by the Randalstown entrance, which is very handsome, and drove four miles to Antrim by a capital broad road, having the park paling by us the whole way. An excellent boundary wall is erecting to supersede the paling, and is giving employment to hundreds; indeed the residence of the present lord on the estate, his spirit of improvement, and the vigilance and benevolence with which he sees about everything and listens to every body, are a blessing to the country, and will in a few years produce a great alteration in the people and neighbourhood. Carriages are permitted to drive through the park from Antrim to Randalstown.

Antrim is a tolerably neat town; at the entrance of it is a very ugly gate-way into Lord Massarene's park. The gate-way is memorable as being the spot where the first Lord O'Neill was killed in the melancholy days of the rebellion of '98. There is nothing particular in the house, which is shown, nor in the pleasure-grounds, except a very broad and stately avenue of limes forming a lady's plesaunce, the sort of promenade one sees in old engravings, where stiff ladies in hoops and great fans, are receiving the homage of gentlemen in ruffles, and

bags and little cocked hats which are sweeping the ground with their lowly reverence; such personages and only such, are fitting company for these quaint and proud-looking trees, which seem to look down with disdain upon our dress and demeanour. I believe we might have seen more of the park, but our time was out, our play-hour was passed, and we returned home rejoicing over our little tour, and determined to bring the beauty we had seen, and the benevolence we had heard of, under the notice of our own countrymen even in this slight way.

THE TWO EAGLES.

A FABLE.

FAR o'er the sea, where breakers roar
On distant Orkney's craggy shore,
And nature, midst those regions rude,
Is merry in her solitude*;
Where not a human step is found
For many a weary mile around,
Save where the crafty Fowler plies
His dangerous trade, and deftly tries
A thousand stratagems, to snare
The wild birds in their rocky lair,
Or lure them downwards, as they trace
Their circuit through the realms of space,
Two EAGLES came, and from the steep
Gazed idly on the dark blue deep.
"Hist!" said the younger, "I behold
A lovely fish like burnish'd gold;
O dearest mother, see it play,
As if it wished to be my prey.
Now will I stoop with judgment true,
Strike it, and soon return to you."
"No, no, my child, I bid thee stay;
I will not have thee sport to-day.
Cast on the sea, this noontide light
Might dazzle e'en an Eagle's sight.
Thus far of sport; and as to food
Our larder's full, our meat is good:
The young ones wait; the weather's fine;
Come with your mother, come and dine†."
On foolish ears the warning came:
He spread his wings and took his aim,
Then hurried down, with headlong beak,
Nor stopped to heed her bitter shriek,
Who knew the guile that lurked within
Those flashing scales, that beauteous skin.
"Stay stay, my child, 'tis all deceit—
A wooden fish—yon Fowler's cheat."
'Twas so: his neck the Eaglet broke,
Dash'd on a plank of painted oak,
And soon was dangling on a string,
A stricken, stunn'd, and wounded thing.
The mother, at his fate distrest,
In lonely sorrow sought her nest,
Pining with all a parent's pain,
To think he ne'er would fly again;
Whilst he, poor bird, a noble prize,
To gladden his destroyer's eyes,
Was clean'd and stuff'd, then found a place
Within a glaz'd and varnish'd case,
Where at this day he may be seen,
With outstretch'd wings and daring mien,
To take his aim, and so withstand
A loving parent's strict command.

Turn not away, dear child, nor fail
To ponder well my simple tale.
And should temptation e'er intrude
To filial ingratitude;
Should wise decrees, or counsel kind,
Seem hard to your less practis'd mind,
Whilst time allows, remember still,
In def'rence to a parent's will,
What dues of love to them are owed,
Who, under GOD, your life bestowed;
Tended your childhood's opening day
With care you never can repay,
And when the world was fast asleep‡,
Did o'er your head their vigils keep;
Loved, warned you, thought upon your good,
Gave you your clothing, home, and food,
Saw many a pitfall midst the flowers
That charmed you in those pleasant hours;
Bade you, with friendly voice, beware
The world's cold smile, the spoiler's snare;
Joy'd in your joys with pleasure deep,
And wept when you were called to weep;
Pray'd for you, taught you how to pray,
Told you of heav'n, and show'd the way.

T. B. M.

* Off this coast are the breakers called the Merry Men of Mey, from the perpetual exultation of the dancing waves.

† "Mr. Lloyd says, in his *Northern Field Sports*, that eagles in Orkney are represented as striking turbot and other fish. For the following account of an eagle's larder, discovered in the Isle of Arran, when a nest of that bird was taken, I have the authority of a Scottish laird who received it from an eye-witness. It consisted of four rabbits, several grouse, a black cock, a lamb, and two *eels*."—LORD TEIGNMOUTH'S *Sketches of the Highlands and Islands of Scotland.*

‡ Ecclus. xlii. 9.

EPITAPH ON COWPER.

YE who pure faith and moral worth revere,
And to departed genius drop the tear,
A fellow bard this humble tribute claims,—
Cowper,—enroll'd 'mid high poetic names.
Though blest with fancy, genius, manly sense,
And, to crown all, with pure benevolence,
These by desponding thoughts were oft o'erthrown,
When "Melancholy marked him for her own."
Yet, while his spirit felt the chastening rod.
Meekly he suffer'd and confess'd his God;
With grateful zeal Almighty love ador'd,
And, though the Poet drooped, the Christian soared.

CIRCASSIAN HOUSES.

AMONG us civilized folks it is too commonly the case that the air of heaven—one of our best friends—is shunned and excluded as our worst enemy; but the Circassians are in the other extreme, and appear to me to admit it to too great familiarity. Besides the way it makes through their thatching and abundant apertures left for it in the walls, it has free admission in all weathers by the open door and windows, while the enormous funnel of a chimney creates a strong draught. This is the general state of the guest-houses, with a few exceptions; while others, owned by most hospitable landlords, are left in such a state of disrepair as would make many Englishmen hesitate about stabling their horses in them. Of this kind was the one I slept in at Bochundûr, on my way to Khabl, with the thermometer four degrees minus. The end of the room, which communicated with a wicker stable, was itself not much better than open wicker-work; while a mass of the clay plaster behind the door, about as big as the doorway, had fallen from the wicker-work, and with other numerous apertures, left such free passage for the wind as made the room, at a few feet from the fire, little better shelter than the adjoining hill-side. But an enormous fire is never wanting; so that the chief guests, whose divans are close beside it, are grilled on one side, and frozen on the other. At two or three feet from these fires, I have frequently of late been interrupted in writing by the ink freezing in my pen.—BELL'S *Residence in Circassia.*

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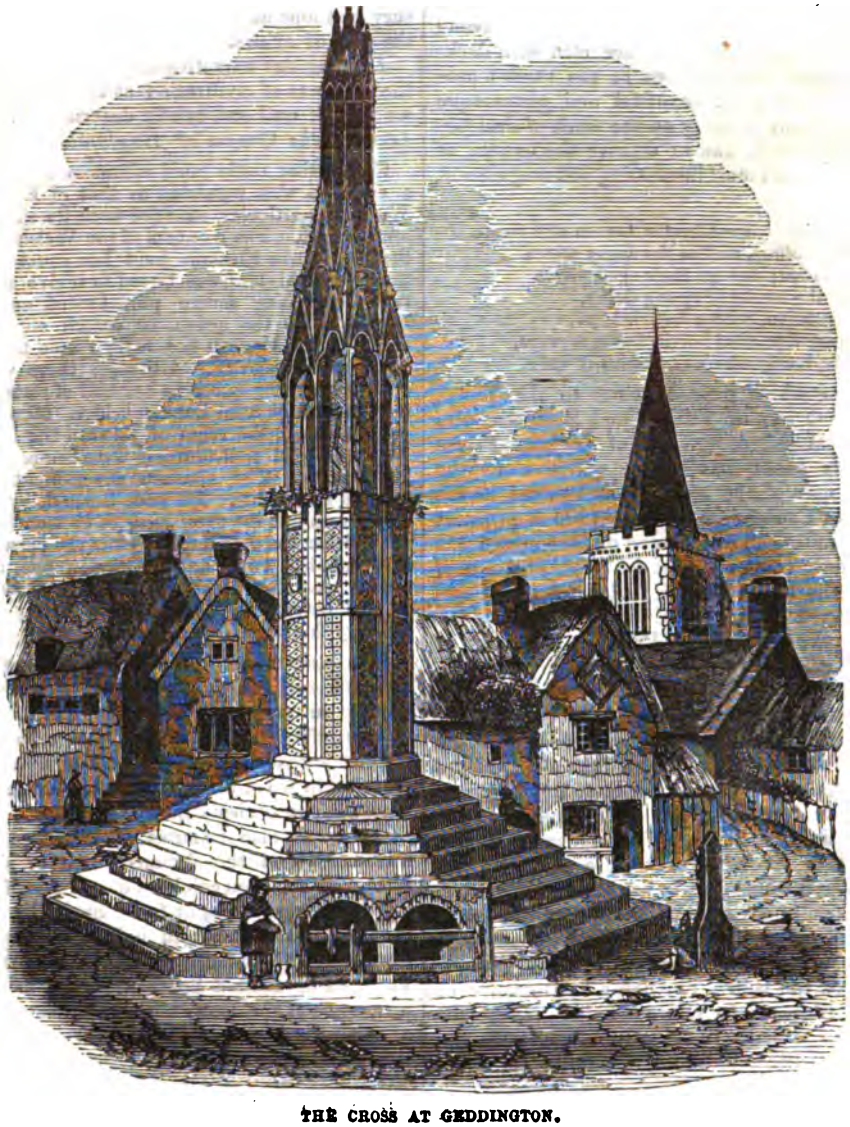
QUEEN ELEANOR'S CROSSES.



THE CROSS AT GEDDINGTON.

III.

When Edward the First, by his vigorous treatment, not unmingled with cruelty, had established his dominion over Wales, he spent some time with his queen in that principality, making the magnificent castle of Conway* his place of abode. This castle had been raised by Edward, who is supposed to have employed on this occasion the same architect who built the stronghold of Caernarvon†. However this may be, a more beautiful fortress than that of Conway could scarcely have been devised. One side is bounded by the river, another by a creek, full of water at every tide, and most beautifully shaded by hanging woods. The other two sides face the town. Nothing in fortified building can exceed its grandeur and relative proportions. Pennant describes it as having two courts within; and on the outside eight vast projecting towers, each of which has a slender one of amazing elegance issuing from the top, within which was formerly a winding staircase. In one of the great towers is a fine window, in form of an arched recess, or bow, ornamented with pillars. Tradition names this recess Queen Eleanor's oriel; and that it formed the state toilet-place of this royal lady seems probable from the strain of an old poem, written at the period of her residence in Conway Castle.

In her Oryall there she was,
Closyd well with royal glas;
Fulfullyd it was with ymagery,
Every windowe by and by,
On each side had ther a *gynne**
Sperde with manie a dyvers pynne.

* See *Saturday Magazine*. Vol. III., p. 17.
† Ibid., Vol. V., p. 65.

* The *gynnes* were the fastenings of the casement, which were often secured by *pynnes* or pins of ivory.

Edward and Eleanora, accompanied by the chief English nobility and gentry, spent a Christmas in this splendid castle, in all the varied festivities of a luxurious court. Knights and fair ladies crowded the noble halls, and the voice of mirth and gaiety resounded throughout the stately edifice. At the same time severe edicts were issued against the conquered, but unsubdued Welsh; and these provoked the sarcasms and keen reproach of the bards of that country.

The castle of Conway, though still retaining traces of the splendour which marked it as the abode of Queen Eleanora, is now fast falling to decay. The grand roof of the state hall is supplied by the canopy of heaven; its ruined arches and broken walls are clad with darksome ivy, which winds around them in the utmost profusion, and with the most beautiful and picturesque effect. Time threatens to carry on the work of destruction with regretted speed, and to deprive the county of Caernarvon of one of its most interesting and magnificent ornaments.

> Proud Pile! thy tempest-beaten towers still rear
> Their heads sublime, and to the angry storm
> Bid bold defiance; though their aged brows
> Bear visible the marks of strong decay,
> While Superstition, with a frenzied eye,
> And wildering fear, that horrid forms surveys,
> Affrights the lonely wanderer from thy walls.

The same year which gave a prince to the Welsh nation in the infant son of Edward and Eleanora, also deprived the royal pair of the heir of England, Prince Alphonso. This event was deeply afflictive to the Queen. The hopes of the nation now centred in the young Edward of Caernarvon; and in 1285 a prospect was opened of uniting in the person of that prince the sovereignty not only of England and Wales, but also of Scotland. On the death of King Alexander of Scotland, which occurred at the period just referred to, the Scottish crown devolved on the Princess Margaret of Norway, great-niece to Edward the First. By the consent of the nobles of Scotland, this princess was solemnly betrothed to Prince Edward of Caernarvon, and thus the British Island seemed likely to be happily settled under his sway. So peaceful did the affairs of the kingdom now appear that Edward the First and Eleanora were able to reside for three years in Aquitaine, where the seventh and eighth daughters of Eleanora were born. On their return to England, they were prevailed on, though with extreme reluctance, to devote their daughter, the Princess Mary, to the life of the convent. She was veiled at Ambresbury in 1289, when only ten years old, and at the same time her grandmother, Queen Eleanor of Provence, took the veil. The natural reluctance of the affectionate Eleanora to relinquish her child, (for which sacrifice she was not sufficiently imbued with the superstition of her times,) drew down upon her some warning epistles from the dignitaries of the church on the impropriety of withholding from heaven a chosen lamb from her numerous flock.

According to Wikes there were many grants made to the nun-princess, which do not accord with our ideas of the requirements of a nun. The forest of Savernake and other woodlands were granted for fire for her chamber; the port of Southampton was to supply tuns of wine, and of oil for her lamp; and many other devices were employed to enrich her.

In the year following the profession of the Princess Mary, the three elder daughters of Edward and Eleanora were betrothed or married, and much is said by the old historians of the magnificence of their nuptials. But we must turn from this brilliant scene to notice the political storm which was even then lowering over the united kingdoms. It was in the same year that Margaret, the young Queen of Scotland, was to be sent from Norway to the English Court, to be educated under the care of the gentle Eleanora. Driven by violent weather to the Orkney Islands, and overcome by the fatigues of a boisterous voyage, the royal child there breathed her last, October, 1290. This event proved most calamitous to Scotland. A female poet says:—

> The north wind sobs where Margaret sleeps,
> And still in tears of blood her memory Scotland steeps.

Edward instantly took decisive measures to secure the vacant crown of that kingdom. He had previously sent the bishop of Durham, with regents duly appointed, to take possession of Scotland in the name of Edward of Caernarvon and Margaret of Norway, but it was necessary to adopt new measures on this unhappy change in the face of affairs.

Leaving our narrative at this juncture, we shall notice the progress of civilization at this period of history, as we find it well and briefly described in STRICKLAND'S *Lives of the Queens of England.*

Civilization made rapid advances under the auspices of a court so well regulated as that of Eleanora of Castile. Wales, in particular, emerged from its state of barbarism in some degree. The manners of the Welsh were so savage at the time when Eleanora kept her court in North Wales, that her royal lord was forced to revive an ancient Welsh law, threatening severe punishment on any one "who should strike the queen, or snatch anything out of her hand." The English had little reason to pride themselves on their superiority. Although there was no danger of their beating the queen in her hall of state, they had pelted her predecessor from London-bridge. Moreover, in the commencement of the reign of Edward the First, London was so ill governed that murders were committed in the streets at noonday. The vigorous government of Edward soon crushed these evils. He made it penal, by proclamation, for any person but the great lords to be seen in London streets with either spear or buckler after the parson of St. Martin's le Grand had rung out his curfew bell, a proof that the curfew was rung as late as the time of Edward the First. It had become an instrument of civil police, rather than military despotism.

The same writer notices the encouragement given by Edward and his queen to sculpture, architecture, and casting in brass and bronze, which were brought to great perfection by Cavallini and other foreign artists, whom they patronized and induced to visit this country. Carving in wood also began to decorate profusely both domestic and ecclesiastical structures.

Tradition also imputes to Eleanora of Castile the introduction of the famous breed of sheep for which Cotswold has been celebrated. A few of these creatures, it is said, were brought from Spain by this queen, and they so increased that in half a century their wool became the staple wealth of England. Afterwards, when war had devastated Spain, and the original breed was lost, some of the Cotswold sheep were sent to Ferdinand of Spain by Henry the Seventh, and thus our debt to that country was repaid.

THE CROSS AT GEDDINGTON, NORTHAMPTONSHIRE.

In explanation of the accompanying illustration we must remark that the memorial of Queen Eleanora at Geddington, though inferior to that at Northampton, is still of an elegant structure, and of an execution "which would not discredit any age." The cross is triangular, elevated on eight steps, and divided into three compartments. The whole structure is nearly forty-two feet high. The first or lower compartment is solid: each face is divided into six panels, entirely covered with ornamental sculpture, in no inelegant taste or contemptible execution, though too crowded, and therefore wanting in effect. This sculpture is of antique appearance, and delicately carved. To each of the panels is attached a heater shield, charged with the arms of England, Castile, Leon, and Ponthieu. Above this is an embattled turret, from which rise six pillars, supporting as many decorated canopies.

The second story or compartment is also triangular,

having its angles corresponding with the middle of each side of the lower story. From this unfortunate arrangement it happens that the three statues of the queen have each a pillar rising directly in front of them. Thus in a front view, the statues are, as it were, cut in two by the pillars supporting the canopy, and when the eye is on a line with any of the sides, the whole of the upper part appears out of the centre. The statues are almost similar to those at Northampton, and represent the queen as very beautiful, clothed in a long flowing robe, and a veil which descends to her shoulders, over which is a coronet, the flowers of which are now quite effaced. The air of the head in these figures is graceful, the drapery falls in natural though too minute folds, and the hands and feet are well drawn. These statues bear so great a resemblance to those of the Italian school that it is considered highly probable that Edward had artists of that nation in his service, if not sent for purposely on the occasion. The third or upper compartment of this structure consists of an assemblage of slender pinnacles and finials rising one above another "in a manner neither easy to be drawn nor described." The shaft is again subdivided into a cluster of angular pillars, which terminate in points or finials, ornamented, as are all the others, with oak leaves, and a large flower at top, not unlike the fleur-de-lis. All above these finials is now destroyed; but, from the general form of the whole, and its elegant pyramidal shape, it is conjectured to have terminated in a spire surmounted by a cross.

Mr. Bridges describes Geddington as a village of one hundred and thirty-five houses, and having anciently a royal seat in a close to the north-east of the church, called the Castle or Hall-close, where the surface of the ground is very uneven, and many foundations are still visible. At this castle in 1188 was held by Henry the Second a council or parliament to raise money for an expedition to the Holy Land. In 1194 Richard the First and William, king of Scotland, spent Good Friday at this castle, and went the next day to Northampton. The manor remained the property of the Crown from Henry the Second to Henry the Eighth, when it was granted to the Tresham family, and descended from them through several intermediate possessors, to the duke of Montague about the year 1715, whose representatives, it is believed, still hold it.

LINES WRITTEN AT THE TOMB OF A YOUNG LADY.

Though now no longer life's warm current glides
Through the fair frame which this cold marble hides
Oh! let not man in ignorance complain,
That beauty fades, that innocence is vain.
She lives—where angels shall a sister greet;
Where parted friends, to part no more shall meet;
And where, as Heaven's best inmates undefiled,
Ere long the father shall behold his child.

We must never prefer the esteem of men to the approbation of God. Every day this sacred rule is transgressed, by sacrificing virtue and conscience to false honour and popular renown.—Jortin.

In the mind of the politician, the mechanist, the man of science, the man of trade, or any of the numerous classes which spend their intellectual energies on the things of time and sense, the expected result of their operations must occupy the first place, since it furnishes the only efficient motive for their exertions. But the defender of religious truth acts in obedience to the principle of duty, and leaves the result with God. The men who are, by office, the especial standard-bearers in the army of Christ, are bound to "contend earnestly for the faith once delivered to the saints," whether their efforts are likely to be accounted the greatest or the least in the annals of human achievement. —Bishop Hopkins.

ON THE CUSTOM OF STAINING THE BODY,

AS PRACTISED BY THE ANCIENT EGYPTIANS.

The Henna that is deeply dyed to make
The skin relieved appear more fairly fair.

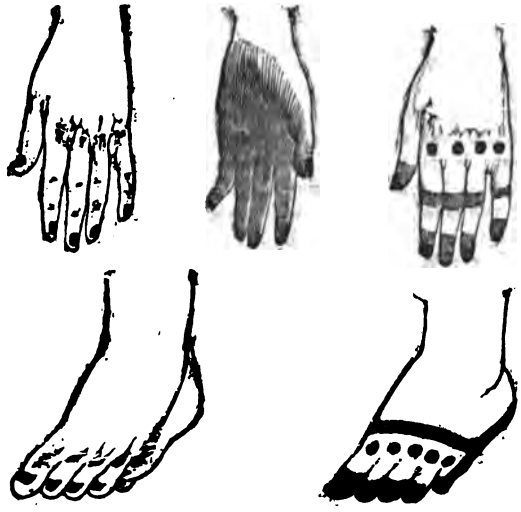
The shrub called by botanists *Lawsonia inermis*, belonging to the Lythrum tribe, is that which yields the celebrated Henna or Alkanna, with which Oriental ladies stain their nails and the tips of their fingers. It was known to the ancients under the name of Ciprus, and in English is called Egyptian privet. It is cultivated throughout India, Egypt, Palestine, and Persia. Sir William Jones speaks of it as being an elegant shrub, about six feet high. The blossoms generally appear between May and August, but it is from the leaves alone that the celebrated dye is obtained. These are gathered, and hastily dried, after which they yield by boiling, their peculiar colouring matter. The Egyptians prepare their henna for use by merely pounding the dried leaves, and then making a paste of them, by adding a little water. Some of this paste is spread on the palm of the hand, and the fingers being doubled, and their extremities inserted into the paste, the whole hand is tightly bound with linen, and kept thus during the night. In the morning the fingers and palm are found to be deeply dyed, so that the colour remains indelible until the growth of the nails renders another application necessary. In the same way the feet are operated upon, and this practice of dyeing the extremities is gone through by all the females of the higher and middle classes, as well as by many of the poorer sort, generally once in a fortnight or three weeks. Mr. Lane tells us, in his account of the modern Egyptians, that the deep orange tint imparted to the nails, or to a larger portion of the fingers and toes, by the use of henna alone, may be not unreasonably considered an embellishment, since it makes the general complexion of the hands and feet appear more delicate, but that many of the ladies stain their hands in a much less agreeable manner, by applying, immediately after the removal of the paste of henna, another paste, composed of quick-lime, common smoke-black, and linseed-oil, which converts the tint of the henna to a black, or to a blackish olive hue.

Ladies in Egypt are often seen with their nails stained with this colour, or with their fingers of the same dark hue, from the extremity to the first joint, red from the first to the second joint, and of the former colour from the second to the third joint, with the palm also stained in a similar manner; having a broad dark stripe across the middle, and the rest left red; the thumb dark from the extremity to the first joint, and red from the first to the second joint. Some, after a more simple fashion, blacken the ends of the fingers, and the whole of the inside of the hand.

On important occasions this custom is observed with much ceremony. The day previous to a wedding the friends of the bride accompany her in state to the public baths, and on their return the following customs are observed. After supper, at which a large company is usually entertained, the bride takes in her hand a large lump of henna paste, and approaching her guests receives from each of them a contribution called *nookoot*. This usually consists of a gold coin, which is stuck into the henna, till the lump is thickly covered with these offerings. When she has thus collected from every one, she scrapes off the henna, with the coins, into a basin of water; and taking a fresh lump, she allows her hands and feet to be dyed, and bound up with pieces of linen. In this state they remain until the morning, when they are sufficiently dyed with its deep orange-red tint. Her guests make use of the remainder of the dye for their own hands. This night is called *Leylet el Hhenna*, or the Night of the Henna.

The use of henna is not, however, entirely confined to the ladies. It is occasionally employed to give lustre to a procession, by slightly tinging the camels with its orange

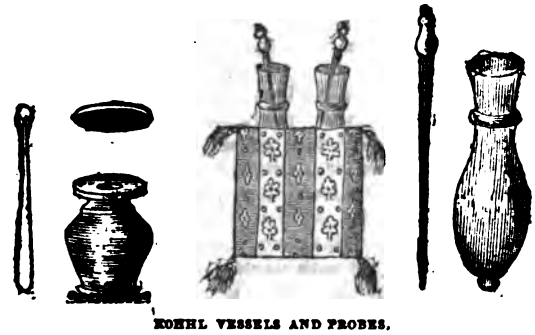
hue. Mr. Lane mentions seeing two processions in which the camels were thus ornamented. One was the religious ceremony of conveying the Kisweh, or outer covering of the sacred Kaabeh of the Mahommedans, and the other the procession of the Mahhonil, a sort of royal litter which is sent empty every year with the caravan of pilgrims to Mecca.



HANDS AND FEET STAINED WITH HENNA.

There is a practice almost universal among Egyptian females of the higher and middle classes, of blackening the edge of the eye-lids with a black powder called *kohhl*. This has the effect of heightening the natural brilliancy of the eyes, which are described as being, with very few exceptions, large, black, and of a long almond form, with long and beautiful lashes, and a fine expression. Kohhl is stated to be a collyrium composed of the smoke-black obtained by burning a kind of *liban*, an aromatic resin used in preference to the better kinds of frankincense, as being cheaper, and equally good for the purpose. Another kind of kohhl is prepared from the smoke-black produced by burning the shells of almonds, and besides these two, which are said to be beneficial to the eyes, there are several other sorts, employed on account of their supposed medical properties. One of these is composed of several kinds of lead ore, to which are often added sarcocolla, long pepper, sugar-candy, fine dust of a Venetian sequin, and sometimes powdered pearls. Antimony is said to have been formerly in use for painting the edges of the eye-lids.

The instrument used in applying the kohhl is a small probe of wood, ivory, or silver, tapering towards the end, but blunt: this is moistened with rose-water, then dipped in the powder, and drawn along the edges of the eyelids. The probe is called *mirwed*, and the glass vessel in which the kohhl is kept, *mookhhoolah*.



KOHHL VESSELS AND PROBES.

The ancient mode of ornamenting the eyes with the kohhl was rather different from that which is most commonly employed at the present time, though Mr. Lane observed two instances near Cairo, where the black line was continued beyond the eye according to ancient custom.

The antiquity of this custom is proved by the sculptures and paintings in the tombs and temples of Egypt. Indeed, the kohhl vessels, probes, and even some of the black powder, have been found in the ancient tombs, and Mr. Lane mentions having specimens of these in his own possession. This custom was also prevalent among the Greek and Hebrew ladies.

In conclusion it may not be uninteresting to give Mr. Lane's opinion of the female countenance among the Egyptians.

Countenances altogether handsome are far less common among this race than handsome figures; but I have seen among them faces distinguished by a style of beauty possessing such sweetness of expression, that they have struck me as exhibiting the perfection of female loveliness, and impressed me with the idea, (perhaps not false,) that their equals could not be found in any other country: with such eyes as many of them have, the face must be handsome if its other features be but moderately well-formed. The nose is generally straight: the lips are mostly rather fuller than those of the men, but not in the least partaking of the negro character. The hair is of that deep glossy black which best suits all but fair complexions: in some instances it is rather coarse and crisp, but never woolly.

LETTERS TO THE READER.

No. III.

MY DEAR READER,

I HAVE in my possession several canaries which travelled with me overland from Malta, of which island they are natives. They are larger, and either of a deeper golden yellow, or of a purer white, than the common English canary; two that have scarcely a tinge of yellow on their feathers, are of surpassing beauty, although, I believe, I shall be considered no amateur in this matter for preferring them to the greener variety of the same bird. One of these milk-white little creatures was reared by myself, and the other, attracted by the warbling of two or three young broods which had been mixed together in a large cage, flew into the room in which they were, and suffered itself to be caught. The stranger passed the first night with its new companions, but exceeding the rest in beauty, and having equal strength to assert a very tyrannical disposition, it soon became necessary to remove him to solitary confinement. This had evidently been its accustomed lot. It expressed great satisfaction by bursting out into such a flood of song as for mingled strength and sweetness went beyond anything we had ever heard. So far from being alarmed, it was absolutely greedy of attention, and could not brook even the sight of another canary. Changing its note of triumph at once into a tetchy tweet upon being placed near the young birds, doubling, at the same time, its apparent bulk by fluffing out its feathers on every side, and looking as sulky and jealous as ever a selfish child did at another's happiness. And nothing could exceed its indignation if but a poor sparrow hopped down within range of its cage to pick up the few grains of hemp-seed that were dropt. Its jealousy even extended to an African gazelle that belonged to me, nor was it fond of children; but like a discreet bird, not wanting in self-respect, courted only the society of grown-up people. He reserved, however, his richest and longest strains for our domestic meals, at which time being generally indulged with a place, not at, but on the table, and partaking of no small variety of food, its appetite for the attentions of humanity at last seemed satisfied.

Circumstances, however, sometimes happen to interfere with the pleasures of spoilt birds, as well as of spoilt children. The illness of a friend, in this case, who was unable to bear the violent joy of this civilized bird that poured forth its ceaseless music through the long days

of an unclouded summer, caused its removal to a remote, but cheerful, part of the house. From that hour its heart of song was silent. A few broken notes, it is true, were occasionally heard, but the spirit of song was silent, and the bird moped.

Nearly three months passed in this way when the returning health of my friend enabled me to bring the bird back to our society. And now all its troubles were forgotten In a few days its tones gushed forth as rich and varied as before. Without changing its food, I had simply tried the effect of kindness. The effect was joy. If such then is our power over the germs of feeling which darkly exist as mere instinct in the very birds that perish, what must be our dominion over the human soul which corresponds in every feature with our own?

I am intimately acquainted with a gentleman who had taken a lad into his service that behaved with much propriety up till a certain period, when he suddenly absconded. He had been sent out upon an errand during the afternoon and not returning, his master, of whose house I was an inmate, wandered about the greater part of the following night under the fear that his servant had met either with violence or an accident. His search proving vain, he left the matter in the hands of the police, who soon came to inquire if he had lost any property, as the lad was known to them as a confirmed thief, and had, in this instance, been taken up for stealing a great coat. My friend gave evidence before a court of justice that after a strict investigation he found no reason for believing that anything had been stolen from him. "No," cried the boy from the bar, "my mistress was so kind to me I could not find it in my heart to steal from *her*." His mistress was indeed full of affectionate interest towards all her household, and I do not wonder at the stern moral power which her unvarying kindness exerted over her domestics.

It is surely no metaphor when we say that the heart is the seat of feeling, for rarely have I observed such strong and unaffected feelings as influenced the conduct of this lamented lady, whose death, not long after the occurrence that I have just mentioned, was caused by excessive action of that organ. It is a principle common to every form of living matter, that the structure of a part invariably indicates extensive changes in the degree and nature of its functions. The natural exercise of an organ increases its size, while disuse suffers it to waste away. The muscles of a crippled limb are lessened in proportion to the time that they are disabled. The muscles of the arms and chest of a sailor are of a larger comparative size than in men not used to the daily hauling of a ship's tackle, or to some similar employment. The nerves of hearing are larger in man as he exists in a savage state, where his personal safety in no small measure depends upon the continual watchfulness of his senses against causes of external danger, than in the civilized man, whose welfare is provided for by a protective government. The social confidence which the latter enjoys for life and property allows of a subdued condition of the nerves of hearing, sight, and smell, and calls forth the nobler faculties of his mind. As civilization advances, the nerves of the lower senses dwindle in size, and become blunted in function, while the brain expands in bulk, as the mind extends in power. The hands of a person that is afflicted with insanity, (which is the irregular, as reason is the regular, action of the brain,) may be seen frequently pressed to the forehead, as if the material channels of thought were clogged. The hands also wander to the seat of the heart when the body is agitated with strong emotion. These instinctive movements point to the earthly centres of our moral and mental powers. But I am digressing.

Few exercises of the human faculties are more instructive than the observation of human homes. To myself it is a source of continual pleasure and improvement, especially where some of the inmates are children, to notice the actions and reactions that take place between characters differing in age, original disposition, education and employment. The German philosopher Kant used purposely to invite to his table men of different occupations in order to gain the knowledge that each might have the peculiar means of obtaining, and he also rarely failed to provide the presence of young persons, with the view of relieving the gravity of age.

The result of such a study is to make us familiar with the causes that lead to moral effects, and advancing from passive observation to active experiment, we soon acquire the personal power of setting these causes in action. We thus become the centres of moral forces. For example, I have related to you the anecdote that an unprincipled boy was disarmed of the power of exercising his vice towards those who treated him with tenderness An important question at once arises to the young experimentalist, whether he can produce the greatest amount of good by exciting the fear, or the love, of those around him.

But I hear you say that the spirit of Christianity has already taught him the duty of universal love. Yes, but if, during our intercourse with society, we are struck with a trait of moral beauty in a spot where we could least expect it, and upon further inquiry into the origin of this solitary virtue, we find it to be reflected, like light, from a heart that is irradiated by the benign principle of our holy religion: and if we can receive this principle into ourselves, and can watch its primary effect upon our own conduct, and its secondary action upon those around us, and find the results to correspond where the cause is the same, I think that such strong inductive proofs of the truth of Christianity are not to be overlooked.

Moral laws act with the same certainty upon crowds as upon individuals. The soft answer that turneth away wrath, and the following practical act of conciliation, are both dictated by the same confidence in the force of kindness.

Soon after the marriage of her present Majesty it was given out by the proper authorities at Manchester that a holiday would be given upon a particular day in commemoration of that event. It was likewise published by certain parties, that a large political meeting of the lower classes would be called upon the same occasion. To preserve, however, the festivity from the possible consequences of any unloyal excitement, the mayor of that town, acting under the advice of the chief of the police, caused the principal places of innocent public amusement to be thrown open free of expense to the working classes at the same hour at which they were invited to attend the political meeting. He also undertook to be personally answerable for any damage that might be done to these institutions.

Here, then, there were two moral forces brought to bear upon large numbers of people whose minds were not sufficiently educated to judge dispassionately of their mutual merits. The spirits of a living mass were either to be calmed by kindness, or troubled by disaffection. I wish, dear reader, that all of us were fully assured in our own minds of the greater force of kindness, except upon very hardened dispositions. When the day arrived, the political meeting attracted only between two and three hundred persons, whereas the Botanical and Zoological Gardens, the Museum, and other similar institutions of Manchester, were filled with workpeople, who were highly gratified and well behaved. The conduct of these crowds showed that they felt the kindness of the authorities. Scarcely five shillings' worth of damage was done to the gardens, and the charges before the police for drunkenness and riot were fewer than upon ordinary days.

It requires, indeed, great experience to know the point at which indulgence ceases to be mercy.

Tender-handed stroke a nettle,
And it stings you for your pains;
Grasp it like a man of mettle,
And it soft as silk remains:

but, *provided we are acquainted with the conditions under which we use them*, moral instruments are fully as capable of being experimentally tried, and as productive of as sure results, as are the methods of natural science. And with this advantage, that while the chemist, as an example of those that handle matter, has to provide a laboratory, together with a variety of expensive apparatus, the student of moral science is tied neither to time nor place; but the hopes, the fears, and wants, of the human soul are everywhere about him. It is true that few possess either the power, or the knowledge, that would be necessary to sway the feelings of a multitude; but every man has at least one heart at his command, and all are apt to underrate the moral consequences that flow from their actions and example. "Whatever is a man's pursuit in life," wrote Sir Astley Cooper, "it is knowledge and moral character which give to him his real rank and position; and in proportion as he possesses these, so will he be welcomed in society, respected and beloved."

A sense of this personal influence creates an interest in its application. It has been calculated that there would be no lack of charity in England, if all the money that is annually given away in casual relief, were collected into one fund, and fairly divided between the actual sufferers. This would, doubtless, be unattainable; but I may add, if all the feeling of which this national charity is the expression, were to avail itself of established facts, that the general misery would be very considerably lessened. Affection for man must be be combined with a knowledge of his constitution, wants and prospects. The channels of affection multiply as the sources of knowledge are enlarged, and the evils that one generation were called upon to cure, have frequently been prevented by the next.

To confine myself to a single point, I think there is no subject, the study of which would be productive of more national well-being, than that of *food in relation to health*. Many diseases of debility that afflict adults arise from causes which acted upon the growth of their childhood. The physical constitution is formed during infancy. The younger the child, the more plastic are its bodily organs, and the more susceptible are its mental and moral functions to external agents. A diseased constitution mainly depends upon an infant being subjected to the action of insufficient or bad food, to the impure air of ill ventilated chambers, to the noxious vapours that arise from a badly drained soil, and to the neglect of artificial warmth. A healthy constitution follows the reverse of all these conditions, and when once formed, will bear great privations in after-life; but nothing will compensate for the early want of proper food.

And creature-comforts are absolutely necessary to the healthy growth of the intellectual faculties. The brain either is stimulated into action by a sufficient supply of wholesome food, or is feebly developed by the current of poor blood that is produced from innutritious food. That organ is not capable of performing, in a creditable manner, the mechanism of thought, unless the blood-vessels are charged with a due proportion of their vital fluid. There is a young child before me, at this present moment, who is naturally lively and intelligent; but its attention is now roused with difficulty, and its eye looks dull. It has gone longer than usual without food. It feels faint; less blood is sent by the heart to the brain, and therefore its senses, those ready instruments of knowledge, are blunted. As soon as the volume of blood is increased by the digestion of another meal, the nerves of its senses will be immediately excited to their natural action.

A person is said to faint away when the circulation of the blood is for a time partly withdrawn from the brain, and mental insensibility is the certain consequence. But if the body, while in this state, be placed with the head at a lower level than the chest, the blood will flow in a larger current towards the brain, and consciousness will as certainly return. Now, suppose the brain from childhood never to have received a due supply of healthy blood, in consequence of a deficient quantity of food having been taken into the stomach, it is evident that its intellectual functions will be feeble. Instead of a sudden loss of mental sensibility, as may be observed during a fainting fit, a healthy action will never have been established.

In families where there are both sons and daughters you may occasionally see the latter suffering from the effects of these causes, while the boys, with more liberty and stronger wills, grow up free from the debility which afflicts their sisters. These effects are often classed with hereditary diseases. And unfortunately sometimes prove so, but only when the causes that produce them are continued by ignorance through successive generations. I am glad to confirm these statements with the valuable opinion of the late Sir Astley Cooper.

In the practice of his profession there are few points, perhaps, in which he rendered himself more useful to the community, than the change he introduced into the dietary of private schools. Whenever a young lady was brought to him, whom he ascertained to be at a boarding-school, he invariably held the following kind of conversation with her:—"What time do you get up, my dear? At what time do you breakfast? What have you for breakfast? At what time do you dine? Have you nothing between breakfast and dinner? What meals have you after dinner?" And having thus acquired a knowledge of the manner in which his young patient was fed, he would, if he thought her illness at all attributable to deficiency of food, at once write a dietetic table for her use. Then, looking seriously in the parent's face, as he handed the prescription, he would say, "Now, my dear madam, the recovery of your child, and the permanency of her future health, depend upon your enforcing the strictest observance of these rules. That young lady," pointing to his patient, "is either to become a puny, delicate, and perhaps distorted object, or a vigorous and happy woman." *Life of Sir Astley Cooper.*

I might adduce the evidence of the teachers of the pauper children at Norwood (near London), to show, that a deteriorated physical constitution does, in fact, greatly increase the difficulty of moral as well as intellectual cultivation. The intellects of the children of such inferior physical organization are torpid; it is comparatively difficult to gain their attention, or to sustain it; it requires much labour to irradiate their countenances with intelligence, and the irradiation is apt to be transient. As a class they are comparatively irritable and bad-tempered. The most experienced and zealous teachers are gladdened by the sight of well-grown, healthy children, which presents to them better promise that their labours will be less difficult and more lasting and successful.

The facts indicated will suffice to show that noxious physical agencies depress the health and bodily condition of the population, and act as obstacles to education and to moral culture.—*Sanitary Report*, p. 202.

My dear reader, let me entreat you to compare with personal observation these words with facts as they occur in homes. You will thus arrive at the conviction that one of the highest of our Christian duties, after having softened the immediate effects of misery with pecuniary relief, is to rise to the study and prevention of the remote causes of these continued evils. The first cause of all our suffering is doubtless inborn sin; but it behoves us, while we recognise the necessary infirmities of our nature, to turn aside every external agent that further hinders man from recovering his station in the universe.

Believe me your's affectionately, F.

INDIVIDUALS, in society, are each of them advantageous to the community, whilst employed in the stations to which they really belong.—MAUND.

SEASONAL WILD FLOWERS.

MARCH.

As when the rising flood's at hand,
To one who loiters on the strand
'Tis pleasant by the ocean's side
To muse, and mark the incoming tide
And count the billows of the deep
As onward step by step they creep,
Till one broad convex shield o'erlay
With silver all the brimming bay:
Ev'n so 'tis sweet, this vernal time,
To mark the still *advancing prime*,
How in her calm and creeping course
Boon nature's vegetative force
Steals onward with resistless flow:
As promising ere long to throw
A broad and bloom-embroidered robe
Of verdure o'er the smiling globe.

MANT'S *British Months.*

We have heard it said (as if in disparagement of the present age) that a "*small modicum*" of knowledge on almost every subject which can be mentioned, is now widely diffused throughout society. It may appear to some of our readers, perhaps, that our simple notices of wild flowers, presenting as they do, but a small modicum of scientific information concerning plants, and aiming only at the exhibition of an attractive subject, to which it is our desire to lead the unscientific and the uninformed, are precisely of the character to incur the censure of the observers referred to, while they may not greatly advance the interests of the class for which they are designed.

But it is our own conviction, and on this conviction we act, that considered apart from strict botanical science, the study of plants, the mere power of recognising them, the associations connected with them, the pleasure of learning some few easy facts in their history, and finding out their more evident relationships, is a soothing and delightful occupation, of great importance in its bearing on the character, and much to be prized in a moral point of view. In a world where illusive dreams of pleasure continually "snare the weak sense," and where enjoyment is sought in so many ways which conscience must secretly condemn,—how important it is to engage the mind with pursuits that are

Uncostly, blameless, peaceful, pure!

how advantageous it is to have even a *small* acquaintance with a subject which makes the pure scenes of nature more delightful to us, and which, when followed aright, exalts our views of the wisdom and goodness of Nature's God.

To nature's ever-varying face
It gives each day a novel grace,
New wonders; and unfolds a store
Of knowledge not perceived before
To many a healthful walk abroad
It tempts, and many a weary road
Enlivens, cheering us along
As blithely as the pilgrim's song;
Reveals a garden in the waste,
And shows a feast before us placed,
Which he who wills may make his own,
Himself enriching, robbing none.

We shall commence our notice of the wild flowers of this month with the Coltsfoot (*Tussilago farfara*), a plant better known for its reputed medicinal properties, than for beauty of form, or attractive grace. Yet it is a curious herb, sending up its flowers on fleshy stalks, and displaying no leaves until the flowers have faded. The scaly downy stalks are six or eight inches high, and each has but one flower, which is of a pale yellow colour, and in form like the dandelion. The leaves which follow the blossom are broad, lobed and toothed, and are supposed to resemble the shape of a horse's foot—hence the name of the plant. There will be no difficulty in recognising these leaves, for, besides their shape, they have another mark to distinguish them;—they are green above, but very white and downy underneath.

On scaly stem, with cottony down
O'erlaid, its lemon-coloured crown,
Which drooped unclosed, but now erect,
The Coltsfoot bright develops; deck'd
Ere yet the impurpled stalk displays
Its dark green leaves, with countless rays
Round countless tubes, alike in dye,
Expanded.

This plant affords another example of a composite flower, and belongs to the section called *radiate*, which contains the larger number of the composite flowers. The florets of the central parts of the flower are tubular, while those of the ray are strap-shaped. Coltsfoot grows freely on a chalky or marly soil, often to the great annoyance of the farmer, who has no means of eradicating its creeping roots, but by ploughing up the soil, removing the plants as they are turned up, and laying down the field to grass.

Now do we begin to observe the exceeding beauty of the catkins or tufts of blossom which depend from the alder, and which ornament the tall slender rods of the sallow, or willow. The former are very beautiful, and repay a close inspection. They have been visible during previous months, but the catkins of the willow have only just put on their most beautiful appearance. At first the spray of this tree was embossed with oval knobs covered with silky down; now those knobs have expanded into beautiful diadems of golden hue which gracefully adorn the russet stem yet but slightly decked with other attire.

Now too, in moist shady places, whether of waste or of cultivated ground, we find the early cardamine, or ladies' smock, (*Cardamine hirsuta,*) a near relation of the fair cuckoo flower,

All silvery white,
That paints the meadows with delight.

The petals, or leaves which compose the flower, are arranged in the form of a Maltese cross, and this is one of the marks by which we know that this pretty plant belongs to a tribe called *cruciferous*, or cross-bearing. This early species of cardamine varies in size and luxuriance according to the situation in which it is found. The plant is of a deep green, more or less hairy, but sometimes, though rarely, quite smooth; it has roundish notched leaves arranged in a *pinnate* or winged form; that is, several little leaflets are arranged along both sides of a common leaf-stalk. The root consists of many white fibres. Another plant now in blossom, and indeed seldom out of blossom, belonging to the same tribe, is the shepherd's purse, (*Capsella Bursa Pastoris.*)

But the most attractive of the blossoms, whether cultivated or wild, that grace this early period of the year, is the sweet violet, (*Viola odorata,*) now beginning to make its presence known by the rare fragrance it sheds on the air as we tread the sheltered copse, or warm hedgerow, where it has been tempted to put forth its modest blossoms. This lovely flower belongs to a small tribe of plants to which it gives its name as being one of the most interesting specimens. The structure of the flower is similar to that of its relation, the pansy, or heartsease, but it cannot boast an equal brilliancy of colouring. Yet who does not prefer the sweet violet to its more gaudy but nearly scentless companion, which under cultivation assumes so many rich and splendid tints. Lovely and irresistible are violet blossoms, even when offered to us in the streets of the Metropolis, where they are thrust upon our notice in little bouquets lodged within a sheath of white paper intended to set off to advantage the beautiful dark hue of their petals. But, how much more lovely are they as seen reposing and partly hiding themselves amidst the soft bright green of their own sunny bank, on one of those genial days which sometimes come unexpectedly upon us, even in a month that is proverbial for its blustering gales, and unpropitious weather

Beautiful are you in your lowliness;
Bright in your hues, delicious in your scent:
Lovely your modest blossoms downwards bent
As shrinking from our gaze, yet prompt to bless
The passer-by with fragrance, and express
How gracefully yet mutely eloquent,
Are unobtrusive worth and meek content,
Rejoicing in their own obscure recess.
Delightful flowerets! at the voice of Spring
Your buds unfolded to its sunbeams bright;
And though your blossoms soon shall fade from sight,
Above your lowly birth-place birds shall sing,
And from your clustering leaves the glow-worm fling
The emerald glory of its earth-born light.

Our botanical authorities mention eight native species of violet, which they distinguish thus:—the hairy violet (*Viola hirta*), the sweet violet (*V. odorata*), the marsh violet (*V. palustris*), the dog's violet (*V. canina*), the cream-coloured violet (*V. lactea*), the dwarf yellow-spurred violet (*V. flavicornis*), the fancy violet, or heartsease (*V. tricolor*), and the yellow mountain violet (*V. lutea*). The name *pansy* given to the *Viola tricolor* is a corruption of the French *pensée*, a thought. This name of the flower is alluded to by Shakspeare. Ophelia says,—

There's rosemary, that for remembrance;
Pray you, love, remember; and there is pansies,
That's for *thoughts*.

Sweet violets are not confined to Europe, but flourish amid the palm-groves of Barbary, and bestow their fragrance on the dwellers in Palestine, China, and Japan. According to Hasselquist, the violet is in great request in Syria for making violet sugar, from which sherbet is prepared. The most esteemed sherbet of the Turks, which is drunk by the Grand Signior himself, is made of sugar and violets.

The author of the *Flora Historica* tells us that it was the violet which induced John Bertram, a quaker of Pennsylvania, to study plants.

He had employed his time in agricultural pursuits without a knowledge of botany, but being in the field one day he gathered a violet, examined its formation, and reflected upon it until he became so prepossessed with the flower that he dreamed of it. This circumstance inspired him with a desire of becoming acquainted with plants; he therefore learned for that purpose as much Latin as was necessary, and soon became the most learned botanist of the New World.

Towards the close of March the symptoms of returning Spring are many and decided. In spite of easterly winds and repulsive storms the vegetable world has generally made a great advance ere April comes to clothe the landscape with her more general flush of green.

'Tis pleasant on the ground to pore,
And with discerning gaze explore
The leaves that mat the coppice dank,
The pathway side, or hedgerow bank,
Chequering the now prolific mould;
With fine mosaic, manifold
In figure, size, and tint, inlaid,
A carpet green by nature made,
Ere yet of damask work she pours
From her rich loom the blooming flowers.

Should the weather be tolerably open we shall find at the end of the month an interesting little plant raising its head in such situations as are described by the poet in the lines we have just quoted. This is the Moschatel (*Adoxa moschatellina*), a dwarf, indigenous plant, flourishing in groves, thickets, and shady hedges. *Adoxa* means "without glory," and the humble plant is thus named in reference to its unassuming growth, and to the want of show in its blossoms, which are of a yellowish green colour, and nearly of the same hue as the leaves. The root of the moschatel is perennial, and consists of several fleshy scales, with fibres and runners issuing from their interstices. It is a very delicate plant, and in damp weather emits a faint musky smell. The writer has sometimes met with this plant in large masses, completely covering the soil, where, sheltered by some copse or hedgerow, it found an appropriate habitat. The irregularly cut leaves formed a sort of matting spread equally in all directions, and here and there from amidst their tender green, there arose the solitary simple stalks only two or three inches above the ground, and bearing each its round terminal head of blossoms. It is such a fragile-looking thing, that it excites our wonder to see it venture forth so early in the year. It is sometimes met with in a different situation from those above described, as we find by the poet's description, who also speaks of its having *white* blossoms, an instance of which we have not yet met with.

There in the hollow lane, whose sides
The native rock o'erarching hides,
While from its moss-grown fissures well
The trickling drops, the Moschatel
Peeped meekly from his rocky bed;
And scarcely dared his clustered head
Of star-like blossoms white, with scent
Faint, not ungrateful, redolent,
To proffer to the searching sight.

The country walks of the botanist, or of the simple admirer of plants, will now be daily growing more delightful. He will not fail to mark the very beautiful colour of the vegetation of the early spring. What can exceed the pure and tender hue of the young foliage of the larch, for instance. It is perhaps the sweetest imaginable tint of green; but it would be less pleasing were it not for the wondrous variety there is in nature, even in that one colour. The freshness and cleanliness that pervades the vegetable world, is remarkable at every season, but more especially in that which is now approaching. Dr. Macculloch has admirably descanted on the neatness, order, and cleanliness which the Creator has evidently designed to pervade his works, both in the animal and vegetable world. With respect to the latter, he says,

The contrivance for this purpose, in plants, consists in the nature of the surfaces most remarkable in the leaves, where this object is sometimes attained by a high polish and great density, at others by a waxy secretion, at others again by a minute texture of the surface, resembling that of hairs or feathers, or by means of actual down or hairs; as in the flowers, the globular velvety surface which enhances the colours by dispersive reflection, serves for this end also. These prevent the lodgment of water, which is itself injurious, and, with that, of all liquid matters which might soil them, while the dust which might have adhered in a dry state, is easily dislodged by the first shower. How effectual the provisions are is evident; since a *dirty plant* (to use an expressive term) is scarcely ever seen, peculiarly exposed as they are to the adhesion of the soil: and thus does the vegetable world present that universal look of cleanliness and neatness, which is as striking as if there was a hand perpetually employed in no other office: preserving an order that we cannot maintain in our possessions without constant labour. If all the dead portions in leaves and flowers, with little exception, detach themselves, the effect is the same, and so perhaps was the purpose; while we know how disagreeable the effect is, when by housing them, we here interfere with the proceedings of nature.

SLEEP.

THIS world is full of such strange sights and noises
That waking eyes and ears have much to bear,
And e'en when all things round a man look fair,
And abstract study, in some shade, employs his
Thoughts from the world apart, he but rejoices
With a half-pleasure, often marred with care;
But when the senses all are sealed, there are
In Sleep's dim empire sweetest scenes and voices;—
Sleep, then, befriend me! wearied through the day
With the unpleasant sights and jarring sounds
Wherewith this fallen and sinful world abounds,
Lap me in light reflected from far spheres,
Shadowy, yet stainless, and anon bid play
Sweet echoes of heaven's music in my ears.—D. D. S.

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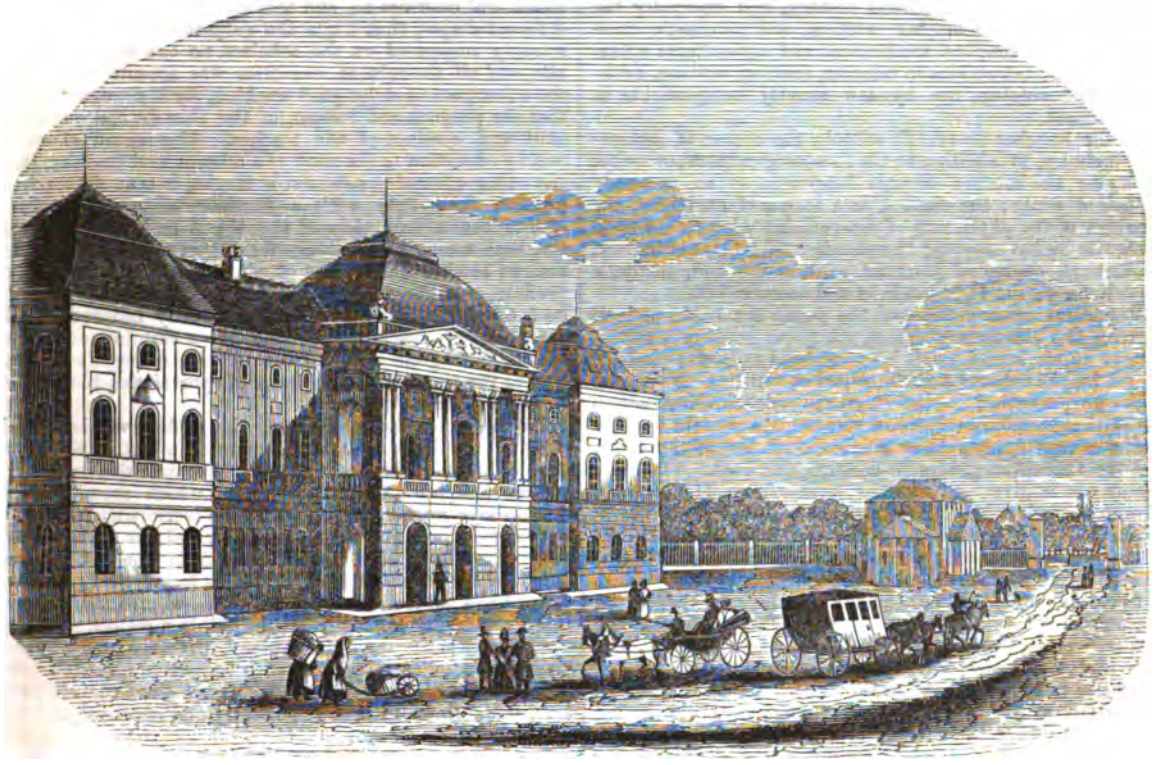
A MONTH IN GERMANY AND HOLLAND.



THE JAPANESE PALACE, DRESDEN.

Section V. Education in Germany.

The system of national education in Germany extends its salutary influence so widely, that every stranger who has a somewhat higher object in his travels than the gratification of mere curiosity, naturally desires to witness in practice that which is so beautiful in theory. This is a subject upon which volumes may be and have been written, and should the interest of the general reader be excited by the following sketch of the system of national education in Prussia he will find no difficulty in extending his information.

The kingdom of Prussia is divided into ten provinces, and these again into departments, circles, and parishes. Every department has a board of education, to which are attached school-inspectors, who reside in the chief towns of every circle the schools of which it is their duty to inspect. Every circle and parish has also its school-board, and every school its proper inspectors or committee; the clergyman of the parish being by virtue of his office one of the inspectors. There is also another officer, the school-councillor, who inspects the schools, stimulates the interest of the different boards and schoolmasters, and reports to the higher authorities. The whole system, since it came into operation in 1819, has been under the cognizance and control of the Minister of Public Instruction, who is assisted in his deliberations by a council. The minister is fully informed of the results of the system by long and accurate reports from the dependent functionaries, who for the most part have a salary attached to their office. The educational establishments are, first, elementary or primary schools; second, burgher or middle schools, and gymnasia; and third, universities.

All parents who are unable to prove that they can give their children a competent education at home, are bound by law to send them to school as soon as they have attained the age of five years. All masters and manufacturers who employ children as servants or apprentices, are required to give them a suitable education from their seventh to their fourteenth year inclusive. No child can be removed from school, till the inspectors have examined whether he has gone through the whole elementary course. Care is everywhere taken to furnish necessitous parents with the means of sending their children to school, by providing them with clothing and books. The schools are supported by endowments, variously derived, by a tax upon property, and by contributions of parents who are able to pay for the education of their children. The number of children in a school must not be too great, nor can one master have more than a hundred scholars. No schoolmaster collects the fees; this must be done by the board or committee. In some large towns there is a school entirely free to the poor. No schoolmaster is allowed to increase his income by occupations inconsistent with the dignity of his office. The committees are legally responsible for all the expenses of the schools, and for the management of their funds.

The school-houses must be built in a healthy situation, must contain good-sized rooms, be well ventilated, and be kept with great neatness. In villages or small towns, they have a garden belonging to them, which is made available to the scholars for instruction in botany and horticulture. Attached to the school must also be a gravelled court for gymnastic exercises. Maps, instruments, models for drawing and writing, collections for studying natural history, &c., are supplied according to the wants of the scholars.

The first object of every school is to train up the young in such a manner as to implant in their minds a knowledge of the relation of man to his Creator, and in conjunction with this, to excite them to govern their lives according to the spirit and precepts of Christianity. The daily occupations, therefore, begin and end with prayer and religious instruc-

tion; and all the business of the school is interspersed with hymns and songs of a religious tendency. Obedience to the laws, fidelity and attachment to the sovereign and to the state, are carefully inculcated. No kind of punishment which has a tendency to weaken the sentiment of honour is allowed in any case to be inflicted. Incorrigible scholars, after the necessary attempts to reclaim them have failed, are expelled.

The course of instruction in the elementary schools comprehends religion, as a means of forming the character of children according to the truths of Christianity; the German language, and the language of the country in provinces where another is spoken; the elements of geometry and drawing; practical arithmetic; the elements of natural philosophy, geography, general history, and especially the history of Prussia; singing, writing, and gymnastic exercises; and the simplest mechanical and agricultural operations. The instructions in religion, reading, writing, arithmetic, and singing, are by law strictly indispensable in every school.

In the burgher or middle schools, the course of instruction includes, in addition to the foregoing subjects, exercises in style; the modern foreign languages as an accessory branch of study; the classics, as a means of exercising the faculties of the pupil, and of determining whether he is to enter the higher schools; the elements of mathematics, and a thorough course of practical arithmetic; and, lastly, a knowledge of the Prussian laws and constitution.

Periodical examinations of the pupils are held: and on quitting the elementary school, the pupil receives a certificate as to his capacity and his moral and religious conduct, signed by the masters and the school committee. No special books are prescribed for the different branches of instruction in the primary schools; the directors are free to adopt the best works as they appear. For religious instruction the Bible, and the Catechism generally adopted, are used. The New Testament is given to children who can read; the more advanced scholars have the whole Bible, in Luther's Translation. Public examinations of the boys' schools take place at intervals, and generally on days celebrated in the national history. The examinations of the girls' schools are not held in public, but only in the presence of masters and parents. Parents may address complaints to the proper authorities respecting the education of their children, but they must not present any obstacle to the conformation of the latter to the rules established in the schools.

The clergy are to seize every opportunity, whether at church or during their visits of inspection, of reminding teachers of their high and honourable mission, and the people of their duty towards the public instructors. The people, in short, are brought as much as possible to regard education as one of the essential conditions of public life, and daily to take deeper interest in its progress.

There are about fifty Normal schools, or schools for teachers, in Prussia; in which the course of study lasts three years. The demand for new teachers in the respective departments is regularly ascertained, and no more are educated than can find employment in the country. The same establishments train masters for the lower and higher schools; the expense is chiefly defrayed by government. The supply of teachers is not entirely furnished by these seminaries, but the standard of fitness which is set up in them is applied by law to all other candidates for the office of teaching. Females have to go through a certain system of preparation for the tuition of their own sex.

The election and nomination of schoolmasters are decided by the committee and inspector of schools conjointly, who generally apply to the normal schools for teachers, and never accept one unless he is recommended according to law. The appointment is ratified by the provincial board, and sometimes by the ministerial authorities. Incompetent teachers are sometimes returned to their seminary for additional preparation; and no inefficient teaching nor lax discipline is overlooked or permitted in the schools. The directors of schools are expected to be the guides and friends of the teachers. They are bound especially to attend to the young teachers, to give them advice, set them right, and excite them to aim at perfection, by attending to the plans of more experienced masters, by forming conferences, and by studying the best works on education.

Of the children of the Prussian monarchy between the ages of seven and fourteen, it is calculated that thirteen-fifteenths are educated in the public schools.

The most interesting of all the German schools is the elementary or poor school, in which children of the lowest class are taught in a most efficient manner. I was conducted to one of these schools in the vicinity of Berlin by a friend who was pastor of the village. The school-house was pleasantly situated with a court-yard in front, a garden, and eight acres of land behind. The number of children amounted to upwards of two hundred, divided into three classes in separate rooms, each class being directed by its own teacher. Most of the children were dirty, ragged, and barefooted, but beaming with health and intelligence. In the lowest class reading was taught on the Phonic Method, which the children seemed thoroughly to enjoy:—it is true that the teacher was energetic, lively, and good-tempered; he managed to engage the attention of every pupil, and by ingeniously varying the subject of instruction to convey much real information, and this was presented in so many different shapes, that while the subject of instruction was strongly impressed on the scholars, no one was a moment idle, and all thought of weariness was absent. Such was the effect produced by good teaching, for it always happens that the progress and temper of the class depend upon the skill and conduct of the teacher. One grand effect of raising education to the rank of a science, and teaching it as any other scientific profession is taught, is that the teachers perform their duty with a fixedness of purpose which results from a clear view of the object to be attained and the best means of attaining it; whereas in England the zealous teacher has a view of education and a method of teaching peculiar to himself, and however earnest he may be he is often inefficient from a want of early training; while the ordinary teacher goes through a certain number of routine duties, and is alike incapable of adapting his instruction to the wants of his pupils or of appreciating his own or their deficiencies.

In the more advanced classes the reading was beautiful, and the examination on what was read no less so: the exercises in mental arithmetic showed how well this branch of science had been taught; processes which most English school-boys would find it difficult to work with slate and pencil, were here performed mentally, and the answer generally given by a simultaneous burst from one half or two-thirds of the class. A few easy details in practical geometry formed the subject of one lesson. The examination in geography was particularly good; the children seemed perfectly familiar with the map of Germany, not only as it respects the mere localities, but also with respect to physical, political, and statistical details. In every class the children sang some beautiful melodies sweetly and effectively.

There are several remarkable inconveniences which render Berlin unpleasant to the stranger, but these to the inhabitants are apparently of so trifling a kind that they would smile at the very idea of recording them. Except in a few of the principal streets the ground presents to the feet so many small rough sharp stones that walking becomes exceedingly painful; and when, at a temperature of ninety degrees and upwards, the kennels in every street exhale their corrupt odours, the distress of the pedestrian is greatly enhanced: if to avoid these two evils you seek the outskirts of the town you are at once plunged ankle-deep in sand, which distresses the feet and eyes, while the heat which it radiates is often scarcely endurable.

I was exposed to all these inconveniences in a marked degree during a few excursions made in company with a German friend. My practical acquaintance with the sand commenced with the first evening of my residence in the city, when a visit was proposed to the grounds of the gymnastic exercise establishment. A drosky conveyed me pleasantly enough off the stones to the house of my friend, who at once led me into a sea of sand, through which the whole of our walk extended. The wonder is how trees and grass and corn can grow in this poor soil:—the trees are indeed stunted, and the grass would not tempt an English ox; and yet no people are so proud of their green fields and plantations. A Berliner would be very angry if you told him that his trees were of small growth, and that nothing seemed to thrive but firs. After half an hour's walking through this sea without water, we arrived at the grounds in question, where we were gratified with an admirable exhibition of gymnastics, of a most diversified character, but everything classified, and pupils of various ages, between seven and twenty-five, passing through regular stages of instruction. The whole was directed by a professor and several assistants, each managing a class as orderly as if in school; and yet there was plenty of merriment, as might be expected from the exhilarating

nature of the exercise. The grounds are royal property, and the whole establishment is under the control of the Minister of Public Instruction. The pupils exceed five hundred in number, and the sum of three dollars entitles each during the whole summer to the use of the grounds, and the instruction of the master. There is a similar establishment for females in the city, in the house of the professor.

A walk in the neighbourhood of Berlin reveals a few handsome villas, and conducts the pedestrian over sundry wooden draw-bridges; but it does little more, except to extend his acquaintance with the sandy desert upon which the city is built. It is surprising that so sterile a spot should have been chosen for the foundation of a town, and still more so that this town should have assumed its present rank and importance. The Thiergarten (which may be called the Kensington Gardens of Berlin,) is a favourite place of resort: it is an extensive but gloomy plantation, chiefly of fir-trees, containing ornamental walks and collections of stagnant water, and coffee-houses, where military bands amuse the visitors. In order to enjoy the evening's amusements at this place it is necessary to go early: an Englishman is surprised at the healthy hours of the Berliners. In the gardens the band left off playing at half-past nine, the company began to leave the gardens even earlier, and soon after ten the greater part of Berlin slept. At four or five in the morning the city is awake and busy with the occupations of the day.

Section VI. Church Service in Berlin.

Among the excellent regulations in Berlin is the publication every Saturday of a list of the preachers at the morning and afternoon service of the next day. As the hour at which the service commences varies in different churches it is stated in this list, and also the hour at which the communion is administered.

The established church in Prussia is the result of an attempt made by the late king to unite the Lutheran and Calvinist churches into one, or rather by abolishing these to institute a new one, which is called the Evangelical. The propriety or the success of this attempt cannot be discussed in these pages, but a short statement of the rites of the church, as they appear to a casual visitor and a stranger, may not be without interest.

The interior of the church is fitted up neatly and plainly; the male and female portions of the congregation occupy separate parts of the church; opposite to each seat is a label, stating, in a fine German text-hand, the name of the occupant, and the date at which the occupancy commenced.

The order of the service is as follows:—The altar is railed in and covered with a cloth; a crucifix with a lighted wax candle on either side stands upon it; and behind and around are pictures of saints and sacred subjects. The priest at the altar is in a plain black gown, and reads the Liturgy of the new church, standing with his back to the altar and facing the people: the responses are made by choristers. The book of public worship in the hands of the congregation is the Gesangbuch, or Hymn-book; this is a collection of prayers, praises, and thanksgivings, written by some of the best German divines; it is printed as prose, but each clause of a sentence rhymes with another clause. These hymns are numbered, and the numbers being hung up in conspicuous parts of the church, the congregation sees what is to be sung without its being given out by minister or clerk. These hymns are sung by the congregation, with an organ accompaniment, in the interval between the lessons for the day and the Liturgy, and again between the Liturgy and the sermon.

The sermon is confined to half an hour: the minister is not allowed to offer either an introductory or a concluding prayer: and on fast-days and other high days even the text is appointed by Government. On ordinary Sundays the text is generally chosen from the lessons for the day.

One of the most interesting appendages to a town in Germany is its public cemetery,—the "Court of Peace," or "God's Acre," as the German terms may be translated. It has been well observed that "in England, the churchyard is generally a small space in the precincts of the church, which is regarded as little else than a passage leading to it; or where it is separated, as happens in many of our populous cities, it is a large inclosure overgrown with weeds and rank grass, which would indicate that it was 'by the world forgot,' except for the high walls, which serve the double purpose of keeping out nightly depredators, and of screening the hateful object from the sight of the rest of the world." In Germany, the public cemetery is an object of public interest. It is resorted to at all hours, and its gates are always open. It is planted with trees of sombre character, and every grave is a little garden. Affection for the dead is rarely expressed in splendid monuments, and never in inflated inscriptions. A cross, an urn, or a broken pillar, with the addition, (to mark the grave of a soldier) of a sword or a helmet, are generally considered sufficient tokens of respect to the memory of the dead. The inscription, often commencing with "Here rests in God," contains the names of the deceased, (if wife, the maiden name in addition to the other name,) the dates of birth, and of death,—a text, such as "Blessed are the dead which die in the Lord," or simply a reference to a text, such as "1 Cor. xv. 55," or a simple sentence, such as "May his ashes softly repose." That the dead are not forgotten by the living is shown by such touching proofs as a garland of fresh flowers, the little border newly dug, or the rose-tree recently pruned and tied up.

Within the enclosure there is often a pump for supplying water to the little garden-graves. There is also a building wherein the bodies of the dead are ordered to be placed within twelve hours after death, the dead-cart calling at the house of the deceased; for whatever may have been his rank or state, death has levelled all distinction; the dead body awaits in this gloomy chamber the hour of interment. In some places a precaution is adopted to prevent premature inhumation: the fingers of the corpse are placed in the loops of a bell-rope connected with an alarm clock placed in the apartment of attendants whose duty it is to watch the dead. The slightest movement of the body would give alarm and procure medical aid.

Section VII. Visit to Potsdam and Sans Souci.

Potsdam is so much associated with names, which, if not great, are notorious, that a visit to it is of historical interest. On an excellent railroad you may travel in about half an hour from Berlin to the Prussian Versailles: the beauties that lie between these two places, such as Zehlendorf and the Pfanen-Insel, or Peacock-Island, a favourite summer retreat of the King of Prussia, I had no time to visit, although the latter is described as an enchanting spot,—an oasis in the midst of a wilderness of sand and firs.

Potsdam is situated on the right bank of the Havel, which here expands into a lake, the banks of which are tolerably well wooded. The attractions of this place were created almost entirely by Frederick the Great. It is a town of palaces: it contains in and about it no fewer than four royal residences, and it was Frederick's will that the private houses should look like palaces. These are mostly inhabited by numerous poor families, and the poorness of the interior would contrast strangely with their majestic fronts of imitative stone, were it not that, in many places, it is cracked and mutilated, revealing the poverty of red-brick below. The streets are wide and empty, and the few persons that you meet generally wear an uniform. Potsdam is, in fact, a huge barrack, and its inmates seem to have been carefully provided for. The barracks are very extensive; and a large building, in which the troops are exercised in inclement weather, is pointed out as a curiosity on account of the enormous size of the ground apartment; it is 660 feet in length, and 75 in breadth, the ceiling is entirely supported by the walls and from above, so that the whole of this extensive area is free for the purpose intended.

The most interesting institution in the place is the Military Orphan Asylum, an admirable and well-managed institution, divided into four great compartments;—viz., the Elementary School, the Music School, the School of Industry, and the Nursery, or Infirmary. We were conducted over the various extensive and interesting apartments by the rector, a gentleman whose kind and intelligent manners seem to have won the love of the orphan children over whom he presides: his presence was everywhere greeted with a smile, and for every smile he exchanged a kind word.

The sole attraction at the City Palace is the suite of rooms occupied by Frederick, and which have been preserved in the order which prevailed during his life-time. In these small and unassuming rooms, you see, exactly as he left them,—Frederick's writing-table, ink-stand, music-stand, book-case filled with French works, and the chairs and sofa which he used, with their silken covers much torn by the claws of his favourite dogs. He despised anything more comfortable than a common truck bedstead; but this is now removed, because it was almost pulled and cut to pieces by relic-hunters. But the most curious apartment is the small cabinet adjoining the bed-chamber, provided with

double doors, and a table in the centre which ascends and descends through a trap-door in the floor; so that whenever the king wished to dine with a companion without being overheard or overlooked, the dishes appeared and disappeared on a given signal without the presence of a third person.

The Garrison Church is an object of attraction on account of the tomb of Frederick the Great contained in a vault below the pulpit, which is opened on payment of a small fee. The tomb is quite simple,—it consists merely of a plain metal sarcophagus above ground, without even an inscription or emblem to remind the stranger of royalty. The attendant informed us that Napoleon expressed his surprise at the stern simplicity of Frederick's tomb, and, bending his knee before it, said, "Hadst thou been alive, I should not have been here!" But he committed the mean theft of carrying off Frederick's sword which found an appropriate place on his tomb, and to the regret of the nation it was lost at Paris in the confusion which marked the decline of Napoleon's power, and has never been recovered; but while relating this fact, the attendant never fails to point to the eagles and standards suspended on either side of the tomb taken from Napoleon's armies by the Prussians. In the same vault is another tomb of black marble, containing the remains of the late King William I. The walls of the church are decorated with tablets, containing the names of the soldiers of all ranks who distinguished themselves, or fell during the war of liberation.

The walk from the town to Frederick's palace of Sans Souci is easy. Its approach is by a series of terraces rising like a huge stair, and planted with the vine, the melon, and whatever flowers will grow. Orange-trees in green tubs grace the angles during summer, and they share with the olive the shelter provided from the rude breath of winter. Having ascended to the summit, the palace scarcely repays the trouble: it is a low building in a very neglected state. At the end of the terrace, in front of the palace, are the sepulchral memorials of Frederick's favoured companions, his horse and Italian greyhounds, the latter bearing such names as "Amourette," "Phillis," &c., but the name of the former is unrecorded; the inscription being probably reserved until the monarch's name could be carved on the same slab with that of his charger, in accordance with his wish to be buried in the same grave.

The gardens are laid out in the stiff formal French taste of Louis XIV., with alleys, clipt hedges, fountains, and statues. These last are in a most offensive taste, and worn, blackened, and mutilated as they are by the weather, positively disfigure the grounds which they never adorned. We feel the justice of the remark of Mr. Gleig, that it is not among the recesses of Sans Souci that we are apt to cherish the most satisfactory recollections of Frederick the Great.

"To his passion for dogs and horses, no objection could have been made, had he not carried it to an extreme which shocks our moral sense; for we may well assume that he who desired to be buried in the same grave with a favourite horse, could not draw a very broad line between the eternal destinies of the dead monarch and of the dead charger. Neither would it be fair to condemn his taste in gardening, because the gardens about the palace are laid out so as to outrage nature in every imaginable way. But the habits of life which he indulged in, in this his retirement, accord so ill with our notions of a really great man's honour, that almost involuntarily we shrug up the shoulder, and say, 'What a strange medley of the mighty and the mean is human nature at the best!' Frederick withdrew from time to time to Sans Souci, for the avowed purpose of getting rid of the cares of state. He there, with his guests, gave himself up to recreation; and as it was his fancy to be intellectual even in his recreations, day after day was devoted to literary trifling. The poets and authors whom it was his good pleasure to see around him, racked their brains at night that they might produce extemporaneous epigrams or sonnets in the morning. Warriors and statesmen, and dames of high degree, arrayed themselves as shepherds and shepherdesses, and went forth to tend imaginary flocks, and sing pastoral songs, among hills which Frederick's soldiers had thrown up, and groves which Frederick's gardeners had planted. All this is so silly, and the recollection of it is impressed upon you so vividly by everything which you see in and around the palace, that I very much question whether you do not come away more humbled than gratified by the spectacle. Yet was Frederick's a mind of such an order, that had there not been wanting to it the principle without which all other qualities seem to wither ere they attain their full growth, we should have found it hard, in all history, to point out one that was superior to it. It was doubtless because he had no more elevating taste to indulge, that Frederick took refuge from himself in these tom-fooleries. Gustavus Adolphus would have sought and found amusement in far higher things."

The same respect has been shown to Frederick's apartments at Sans Souci as at the City Palace; except that the same persecution by relic-hunters has forced the bed and chair to a safer refuge in the Museum in Berlin, where soldiers are accustomed to watch over the national treasures. Frederick's clock, which he always wound up himself, still points to the hour (twenty minutes past two) within five minutes of which he expired.

A colonnade running behind the palace and connecting the two extremities of the upper terrace, has a tolerably fine effect. From this colonnade a neighbouring hill is seen crowned with an artificial ruin of a Roman colosseum. Ruins are at all times more painful than pleasing objects to gaze upon; but when time, that slow builder of the picturesque, has been busy on them for ages, and has trailed the creeping ivy over walls which once enclosed alike the palace and the prison, they then become objects of deep interest, forming the material link whereby we connect the past with the present; and whether the ruin be of Roman amphitheatre, Norman stronghold, or priestly abbey, it pertains peculiarly to times long past, and carries us back to the chapter in the history of civilization to which it belongs; but a modern ruin—a modern antique, is positively offensive because unnatural and inappropriate—the mind can associate it with nothing, because it is nothing except a mass of rude stones or cement vainly endeavouring to look old.

Abutting close upon the colonnade is the celebrated windmill which Frederick wished to pull down in order to include the ground in his own gardens. Indeed, the ground is wanted to give completeness to the gardens; and the clack of the mill, heard distinctly from the palace, must have sounded like a note of derision. The king would have paid handsomely for the possession, or he would have built another larger and better mill on a more distant spot; but no! a larger and a better mill had no charms for one who was attached to the home of his fathers, with which all the fond associations of his youth were in a manner connected, and though threatened with all the terrors of the law and the bolts of absolute power, yet the honest miller refused to quit his mill unless the verdict of a court of law decided that the king had a juster claim on the place than himself. Frederick was sufficiently wise, or just, or prudent, not to tempt the honesty of his law officers, and the miller continued to powder the trees of Sans Souci with his flour, and to scare away the birds with his clack. But the story is not complete without relating that a descendant of the celebrated miller being somewhat embarrassed in circumstances offered the mill for sale to the late King: his conduct on the occasion redounds to his honour; "No! no!" said he, "the mill now belongs to Prussian history—it is a national monument, and must remain in your family; here is a sum of money to free you from debt."

The walk from Sans Souci to the New Palace is about a mile through groves of trees, which of late years have been allowed to grow in their own way, and therefore have grown naturally and look beautiful. Indeed, our admiration at this place is not that the trees grow well, but that they grow at all, when we consider that Frederick's fancy was to convert a sandy desert and a swamp into a delicious garden. Indeed, he frequently complained of the climate and soil under which his trees were pining, and hence the witty and courtier-like compliment of the Prince de Ligne: "Sire, it appears that with you nothing thrives but your laurels." The New Palace is a decaying monument of bad taste and folly: it was built by Frederick at the close of the seven years' war, not because he wanted a palace, but because he wanted to convince his enemies that his resources were not exhausted. It contains two hundred apartments; marble and gold have been profusely lavished everywhere, and one large apartment is entirely lined with shells, producing an effect of most intolerable frippery. The pictures too, with very few exceptions, form a collection of rubbish, proving that in order to become the patron and judge of art, something more than unbounded wealth is necessary.

Section VIII. Journey to Leipsic.

The transit from Berlin to Leipsic is by a well conducted railroad, which traverses a natural level nearly the whole distance, and reveals but few efforts of the engineer in making rough things smooth. One consequence of this constant level, is, that the line intersects a large number of lanes and cross roads, at each of which is a telegraph managed by an attendant announcing expected trains, and trains gone by, so that the frequenters of these roads have only to look to the signal (two arms hoisted by day, and a lamp by night) to know that a train is soon expected to cross the path; and the arms and the light being lowered to know that he may proceed in safety. Another excellent arrangement is a simple means of communication between the guards and the engine driver, effected by means of a rope passing through iron rings supported by posts and extending the whole length of the train.

The most interesting town on the road was Wittenberg, celebrated as the Protestant Mecca; the cradle of the Reformation where Luther openly opposed the Church of Rome and denounced its abuses. This place contains many interesting memorials of the great Reformer and of his friend Melancthon, which, to my regret I did not inspect, having inadvertently omitted to have this place entered in my passport on quitting Berlin.

Before my arrival at Leipsic I had exchanged travelling companions more than once; but they were all, as usual, very kind and agreeable, and pleased to render assistance and information. The disposition of the people is to be friendly and easily pleased, and when the traveller in search of information, forgets for a while his English reserve, he never need want an intelligent acquaintance and guide. He must, however, beware of appearing to notice the barrenness of the land; the people take all possible pains to conceal it, and think they have succeeded. The sandy waste is wearisome, and the fir plantations no less so; the eye is fatigued with the constant succession of long straight poles and dark foliage, and it was an evident relief to us all when at Çoben the scenery began to change, and some trees, not pines, aspired a few feet towards the blue sky. These produced bursts of admiration, "Wie schön—recht schön—wunderschön;" the word schön, or beautiful, being in constant use among this easily pleased people.

Railroad travelling was very pleasant, especially when contrasted with the slow torture of the Schnell-post. Accommodation on the road was not forgotten, for the German considers frequent supplies of food as necessary to his existence as tobacco is to the breath of his pipe. Whenever the steam horse required provender, the little refreshment-shed at the side of the line was a scene of bustle; sandwiches as thick as twopenny-loaves, sugar-water, fruit, coffee, wine, &c., were freely circulated at moderate charges. But the stoppages, which sometimes extended from twenty to forty minutes, would have fretted some of my countrymen sorely; to me they were peculiarly acceptable, as affording relief to monotonous scenery, and bringing a town or a village under inspection. The native who travels often, and finds no novelty in these things, may if he please grumble; but he does not grumble; he walks about with his long pipe, or diminutive cigar, stirs up his sugar-water in a glass cylinder a foot and a half long with a wooden spoon of two feet, listens to the music provided for him, chats with his neighbour, and is happy.

By the time I had reached Leipsic daylight was giving place to moonlight, and mine host of the Golden Crane was preparing supper. He supplied me with roast goose, apple sauce, and pumper-nickel, as the brown rye-bread is called, which is so extensively used by men, women, and horses, and which has been described by a witty Frenchman as a "certaine pierre dure, noire et gluante, composée à ce qu'on prétend d'une espèce de seigle."

I passed an hour or two very pleasantly, rambling about this quaint old city. To a person newly arrived from Berlin the contrast is very marked:—Berlin is a city of yesterday, and bears marks not of German but of French origin. Leipsic is a city of the middle ages: its streets are narrow and unpaved—its houses described by Göthe as "extraordinary shining buildings, with a front to two streets, inclosing courts and containing every class of citizens within sky-high buildings that resemble large castles and are equal to half a city." The old houses are, indeed, resplendent with windows, and the roofs sometimes of sufficient pitch to contain six stories of windows, and small steeples on their tops. It would almost seem that the intention was to accommodate every inmate of the house with a window for his own especial use, for nowhere are people more fond of the idle habit of "looking out o' the window." For the gratification of this luxury window-cushions are provided, on which the elbows rest for many an odd half hour; and it is indeed curious to see the long pipes dangling out of the window, and gentle equidistant puffs of smoke ascending from this soporific battery. In most of the towns of Germany smoking is strictly prohibited in the streets. I was more than once tempted to inquire the difference between smoking out o' the window and smoking in the street. It is certainly a Stradling versus Styles case.

The peculiarities of Leipsic seem to be all congregated in the great market-place; and the effect, although quaint, is picturesque. The ancient Rathhaus is a type of the window-roofed houses: it bears upon its front the appropriate inscription, "Unless the Lord keep the city, the watchmen watch in vain."

Not the least remarkable among the sights in this old square were the peasant girls weaving beautiful garlands of flowers; so beautiful, indeed, that one could not but regret their perishableness.

Leipsic affords another example of the inutility of stone walls in the nineteenth century; the fortifications have been converted into gardens, and the walk between them and the suburbs, including the entire circuit of the old town, is most agreeable, and occupies scarcely an hour, while every step brings into view some spot rendered interesting by one of the longest and sternest actions of war, and one of the greatest battles recorded in history. The battle of Leipsic is distinguished by the Germans as the Völkerschlacht, or the Battle of the Nations: it decided the downfall of Napoleon, and consequently the fate of Europe.

The suburbs present none of the peculiarities of the old town; but contain several new and handsome buildings, including the post-office, near which is the establishment of Mr. Brockhaus, the eminent printer and bookseller, situated in the very centre of his trade.

The book trade of Leipsic is so important that the booksellers, of whom there are reckoned at the fairs about 560, and many of them settled in Leipsic, have a large exchange of their own to transact their business in. But it is not, as Mr. Laing remarks, the printing and publishing in Leipsic itself that is the basis of these book fairs, but the barter of publications between booksellers meeting there from different points. The bookseller, perhaps from Kiel on the Baltic, meets and exchanges publications with the bookseller perhaps from Zurich, gives so many copies of his publication, a dull pamphlet possibly, for so many of the others,—an entertaining work. Each gets an assortment of goods by this traffic, such as he knows will suit his customers, out of a publication of which he could not perhaps sell a score of copies within his own circle; but a score sold in every bookselling circle in Germany gets rid of an edition. Suppose the work out and out stupid and unsaleable, still it has its value; it is exchangeable should it be only at the value of wrapping paper for works less unsaleable, and puts the publisher in possession of a saleable stock, and of a variety of works. His profit also not depending altogether upon the merit of the one work he publishes, but upon the assortment for sale he can make out of it by barter, he can afford to publish works of a much lower class as to merit, or saleable properties, than English publishers. The risk is divided, and also the loss, and not merely divided among all the booksellers who take a part of an edition in exchange for part of their own publications, but in effect is divided among the publications. The standard work, or the new publication of an author of celebrity, pays the risk or the loss of the publisher of the bad unsaleable work, as by it he is put in possession of the former, or the more saleable goods. The loss also, compared to that of an English publisher, is trifling, because although the German press can deliver magnificent books, yet the general taste of the public for neat, fine, well-finished productions in printing as in all the useful arts, is not by any means fully developed as with us, and is satisfied with very inferior paper, made of much cheaper materials. The publisher, also, is saved the very important expense of stitching, boarding, or binding all he publishes, by his own capital, the private buyer generally taking his books in sheets. The bound or made-up books in booksellers' shops are but few, and generally only those of periodical or light literature. The advantage to literature of this system into which the book trade has settled is, that hundreds of works see the light which with us would never

get to the printing house at all. The disadvantage is, that it encourages prolixity of style, both in thinking and expression; two or three ideas are spun out into a volume, and literature is actually overwhelmed and buried under its own fertility and fruits. No human powers could wade through the flood of publication poured out every half year upon every conceivable subject. Dr. Menzel states, that at least ten millions of new volumes are printed annually in Germany. Each half-year's Leipsic catalogue numbers at least a thousand new writers: hence it is calculated that there are no fewer than fifty thousand persons now living who have perpetrated a book. At this rate, as Mr. Strang remarks, the names of German authors will exceed the number of living German readers.

The books sent for subscription to Leipsic remain there twelve months and a day, after which the remainders or unsold copies are returned to their respective publishers, under the name of *Krebs, i. e.*, crabs, an indigestible description of shell-fish with which Leipsic most plentifully supplies all Germany.

Section IX. Dresden.

Leipsic is united to Dresden by a railroad, and four hours suffice for the journey. For some distance the country is flat as usual, but in the course of the transit the eye is refreshed with the sight of engineering efforts; the line has not been altogether levelled by nature: cuttings, embankments, and a long tunnel, show that we are in the region of hills; and before the spires of the "German Florence" come into sight, the country assumes altogether a different aspect. At Meissen (the seat of the celebrated Dresden china manufactory) the Elbe is crossed by a long bridge, on passing which the valley is seen smiling with cultivation, and richly variegated with fruit trees and vineyards, while the undulating slope is dotted with the summer-houses of the proprietors and the dwellings of the vine-dressers.

The approach to Dresden from Leipsic does not convey a good idea of its very picturesque situation. Being placed in the centre of an enormous plain, yet surrounded on all sides by an amphitheatre of low hills; with domes and gilded spires glistening in the sun, and a fine river gliding peacefully along, Dresden from most points of view has a very charming appearance; but here, as in so many other cases,

'Tis distance lends enchantment to the view;

for when examined in detail the city has a gloomy air; its streets are narrow, and badly paved; its public buildings are insignificant,—the royal palace positively ugly, composed of many pieces running up one street and down another, apparently without any attempt at architectural beauty. Connected with the palace by an unseemly covered gallery spanning the street is the Roman Catholic Church; for here we have the strange anomaly of a court professing a different religion from that of the people. Upon this church, which is a tasteless specimen of a tasteless style, the Italian, the hand of decoration has been lavish and profuse. It was built in the early part of the last century after a design of the Italian Chiaveri. The quantity of ornament, as Mr. Russell remarks, and the waved façade with its interrupted cornices and broken pediments, show the bad taste of the time. The elevations of the lower part are harmonious, and the effect of the whole gorgeous; but there is a total want of simplicity and grandeur, and the parapets are bristled round with grim sandstone saints. The more simple and elegant form of the interior is injured by the galleries for the accommodation of the court. In equally bad taste is the introduction of a full band into the church on Sundays and festivals, to assist in the performance of high mass; the effect is certainly very fine, but it belongs properly to the concert room; for there is something very offensive to the ears of a Protestant in the sound of drums and trumpets, and men having the voices of women, as accompaniments to the worship of God in a Christian church. During the service the female part of the congregation occupies one side of the church and the males the other, and domestics of the royal household, armed with enormous bâtons, walk up and down the nave to preserve order.

The most favourable view of Dresden is obtained from the bridge, or from the terrace of Brühl. "Whether you look up or down the river," says Mr. Russell, "the towers and palaces of the city are pictured in the stream. A lovely plain, groaning beneath population and fertility, retires for a short distance from the further bank, then swells into an amphitheatre of gentle slopes, laid out in vineyards, decked with an endless succession of villages and villas, and shut in towards the south by the summits of the Saxon Swiss, a branch of the mountains of Bohemia." The bridge itself is of stone, and is regarded as the largest and finest structure of the kind in Germany. Its construction is very solid, in order that it may resist the force of the stream, (which when the snow begins to melt, sometimes rises sixteen feet in twenty-four hours,) and the shocks of floating masses or ice. At the time of my visit the excessive heat and drought had shrunk up the river to a narrow sluggish stream, and every green thing was parched for want of moisture. But the environs of the city were exceedingly beautiful, and the view from the terrace of Brühl very charming. This terrace, which is approached by a handsome flight of broad steps, runs along the left bank of the Elbe. It is the favourite promenade, and in fine warm weather much frequented by those who seek an hour's pastime. Under the shadow of chesnut and acacia they can enjoy their pipe and coffee, or Bavarian beer, with a beautiful view before them, and good music at hand. The Bavarian beer, just mentioned, is a thin and very bitter drink. The brewery is situated at a short distance from the city, on the right bank of the river, and is a place of great, but not of vulgar resort. We were conveyed thither in an omuibus, which resembled ours only in having a long body and being very clumsy. The coachman's seat was on the same level with the twelve passengers occupying the body of the vehicle; it was covered in and capable of accommodating three persons besides the coachman. From the roof of the coachman's seat was attached, by an elastic band of iron, a bell, which with every motion of the coach made a fearful noise. Its use was to spare the lungs of the conductor behind, who, whenever he wished the carriage to stop, pulled a handle, the effect of which was to impart a kind of hysterical jerk to the said bell, and thus to produce some variation in the noise, which to the coachman's accustomed ear indicated that a stoppage was required. Another jerk informed him when to proceed. But soon the noise ceased, and we were set down at the bottom of a flight of steps conducting us to a terrace, on which stands the brewery, a handsome and extensive white building. It contains spacious saloons and apartments for guests in damp or cold weather, and gardens for dry and warm weather. The beer is served in thick glass jugs with metal covers, its taste was cool and bitter, and its effect refreshing; almost every description of eatable may be procured here, and a band of music generally enlivens the effect of the whole.

But at this and at all other places of amusement, the parties break up at an early hour. Everybody is in bed by ten o'clock or half-past, after which the stranger finds the streets deserted by all except the night watch, going their rounds and blowing their harsh horns, to indicate that the guardians of the city are awake while others sleep. The dinner hour was also equally primitive. My breakfast being generally served up in my little chamber at six o'clock, I was quite ready for the table d'hôte at noon. These dinners were pleasant, not only on account of the novelty and goodness of the food, but also for the pleasant company and the great kindness displayed by all.

One of the principal attractions of Dresden is its picture gallery, containing the finest collection to be met with anywhere north of the Alps, but it is greatly to be regretted that some of the finest specimens, although they were spared by the conqueror, have suffered from exposure to moisture and long neglect. Frederick the Great bombarded Dresden, battered down its churches, and laid its streets in ruins, but ordered his cannon and mortars to keep clear of the Picture Gallery. He entered as a conqueror, but with affected humility requested permission of the captive Electress to visit the gallery as a stranger. It is indeed very painful to see the air of neglect which pervades everything in this exhibition: the building itself is old and shabby, and being formed of one square within another, (as if a broad gallery running round a square had been divided by erecting a partition parallel to the sides of the square,) the lights are badly managed. Those of the outer square are from the street, those of the inner from the court which the square contains; the best pictures are placed opposite the windows, and a very large number occupy screens, which project half-way into the room between every two windows. Many of the paintings are dirty, and the frames tarnished, so that for want of fires during winter, and proper ventilation during summer, pictures of inestimable value, including the Raphael and the Correggios, have become injured. Attention has been called to the fact, and a new gallery on the banks of the Elbe is talked of, but it is greatly feared that some are too much injured to be recovered, and that others may suffer from injudicious

restoration. The number of paintings in this gallery amounts to 1857, and 177 pastil or crayon-paintings: the catalogue contains a short description of every one of the paintings, including its dimensions and the material upon which the artist worked, whether canvass, copper, or wood. Respecting the arrangement, the outer gallery contains the works of French, Flemish, and Dutch masters in eight divisions. The inner gallery is devoted to Italian and Spanish masters in five divisions, with the exception of the works of Raphael and of the Roman school, which occupy a separate department, or a ninth division of the outer gallery.

To appreciate the beauties of this noble collection, abundant leisure and a cultivated taste for the fine arts are most indispensable. Not possessing either of these requisites I will not presume to say one word respecting individual pictures, but refer the reader who is interested in the subject to more competent judges*.

One of the most remarkable and valuable collections of works of art in Dresden, perhaps in the world, is to be found in that portion of the royal palace known as the Grüne Gewölbe, or Green Vaults, a term which has given rise to much conjecture and discussion, and yet remains doubtful, but originating probably from the colour of the hangings with which the chambers were originally decorated. They are shown on week-days from eight to twelve and from two to six. The admission is obtained on payment of a fee of two dollars to one of the inspectors or keepers of the collection, who conducts parties not exceeding six in number over the same, and points out the most remarkable objects. It is usual for a stranger to state to the landlord of his inn his wish to visit the collection, and as men call daily at the hotels to make up parties of six, you can be included in one such party on payment of one-sixth of the admission fee and a trifle to the man who makes up the party. The catalogue, in its appropriate green cover, is useless during the exhibition, not only on account of the clumsy style in which it is arranged, containing as it does such objects only as the compiler judges worthy of notice, but because the person who conducts you through the place is talking the whole time, and inviting your attention to particular objects, and is ready and able to answer any question that may be put. The catalogue, however, is useful to refresh the memory, and to furnish a few historical and anecdotal particulars of some of the most interesting objects.

The origin of this collection belongs to the times when the Electors of Saxony were among the most powerful and richest of the sovereigns of Europe. The Elector Augustus, in the year 1560, formed in his castle a cabinet of arts, the first contents of which consisted mostly of mechanical, surgical, and mathematical instruments, minerals, watches, books, pictures, curiosities in nature and art, (all of which are still preserved in the present collection,) the object of which was to present under one view whatever was most remarkable in art and science, with examples of what could be accomplished by the exercise of patient ingenuity. Some time after, this prince enriched the collection with the jewels belonging to himself and his family, together with numerous works in gold and silver, and in precious stones; and his descendants following this example, gradually collected all kinds of rare objects, such as jewels and exquisite carvings in the most costly materials. During stormy periods in the history of Saxony the collection has been more than once packed up and removed to a place of greater security; but it does not appear that any of the objects have been lost. The value of the whole collection must amount to several millions. "The political economist would regret that so much capital should lie idle, while the man of taste may affect to despise what, at first sight, he might deem a collection of toys; but, in truth, he will find on a nearer examination that a large portion of the objects are in the highest degree worthy of attention as works of art, while others are wonderful as the elaborate productions of patient toil and skill, and of arts, which in the present day may be said to be almost extinct, or at least to have degenerated."

Within the last few years the whole collection has been re-arranged. It is now under the direction of a Minister of State, and is intrusted to the care of two inspectors, and two attendants, who are all personally liable for the safety of every article, and every year a minute inspection of the whole collection is made. There are eight rooms, each exceeding the previous one in the splendour and richness of its contents; but the objects are so numerous that we can only allude to a few.

The first room contains a collection of bronzes. The statues and groups amount to one hundred and ten: they are all cabinet specimens, *i. e.*, smaller than life and of most exquisite workmanship, being for the most part Italian copies of the most celebrated works of antiquity. An equestrian statue of Charles II. of England, in character of Saint George, is cut out of a solid block of iron. The artist, Gottpied Leygebe of Nuremberg, worked at it almost incessantly during five years. A crucifix, eighteen inches high, by John of Bologna, is the masterpiece of the collection.

The second, or Ivory Cabinet, contains 484 specimens of the most exquisite carvings in ivory. It is stated that the Elector Augustus, the founder of the collection, was especially fond of works in ivory. Some cups in this cabinet are said to be of his workmanship, and it is related that on one occasion, in the ardour of his pursuit, he lost a portion of his long beard at the turning-lathe. A beautiful crucifix is pointed out as the work of Michael Angelo, but in the catalogue it is stated that Baldassari, one of his pupils, is most probably the artist who carved it. Two horse's heads, in relief, are by Michael Angelo. There are also some beautiful works by that universal genius, Albert Durer. One of the most wonderful specimens of skill and industry in this cabinet is the fall of Lucifer and the wicked angels, consisting of eighty-five figures, carved in one piece of ivory sixteen inches high, and mounted in a frame of silver. Another elaborate work is the model of a Dutch frigate, on the principal sail of which are the arms of Saxony beautifully cut.

In the third cabinet are ostrich eggs carved and ornamented in a variety of ways. Some are mounted so as to form drinking-cups; others are made to represent the bird itself, with silver or gold head, wings, and feet. In the same way a large number of vessels are formed by mounting shells, chiefly those of the nautilus, so as to represent the forms of animals, real and fabulous, and many strange devices, exhibiting vast ingenuity and skill on the part of the artist. There are also a large number of curious works in coral, agate, torquoise, porcupine's quills, mother of pearl, and amber. The various Florentine and Roman mosaics in this collection give a very good idea of the progress and results of that beautiful art. Some are very costly, the materials employed being precious stones. Landscapes, portraits, flowers, fruits, birds, and insects are represented with much fidelity, and great splendour of colouring. The paintings in enamel are among the most successful specimens of this art. Several are by Ismael and Raphael Mengs, and Dinglinger, brother to the goldsmith of that name. This chamber also contains works in Dresden china. One is a chimney-piece adorned with the precious stones of Saxony.

The fourth cabinet contains the gold and silver plate which was used at the royal banquets of Saxony. It consists of silver gilt, or of solid gold, and much of it is adorned with precious stones. There are also costly vessels of crystal, valuable watches, &c. The taste for splendid ornaments has been exhibited in Saxony from ancient times. Especially from the twelfth century have they been considered as a necessary accompaniment to the splendour of a court, and even to the establishment of an illustrious knight or gentleman. Not only the dining-table, but the rooms where the master was in the habit of sitting, were profusely adorned with costly and peculiar vessels of gold, silver, crystal, &c., while about the dining hall was a large variety of splendid beakers and vases for the use of the guests. The love of splendour excited emulation to procure the most rare and costly vessels: all sorts of colossal cups, bowls, salutation cups, stirrup cups, drinking horns, &c., were fashioned into fantastic figures of unicorns, stags, elephants, or of owls and other birds, or of knights, as St. George, &c. By degrees the use of these vessels ceased to be common, and now they are merely produced at public entertainments of princes and nobles. It is only on extraordinary occasions that these treasures are used by the court of Saxony. Many of them are supposed to be by Benvenuto Cellini. Some of the cups are of the rarest opal, ruby, and purple glass, produced by the secret processes of Kunkell. This cabinet also contains some musical clocks adorned with precious stones and filagree work, and exhibiting a variety of automatic movements: these clocks were placed on the banquet tables near distinguished guests.

The fifth cabinet contains above a thousand objects, such

* In Mr. Murray's admirable *Hand-book for Travellers in Northern Germany*, which no English traveller in that country ought to be without, the choicest works are set down "with the view of guiding the eye of the spectator in a collection so extensive, sparing him the fatigue of examining productions less worthy of attention, and at the same time relieving him from the mortification of having passed over any of acknowledged merit."

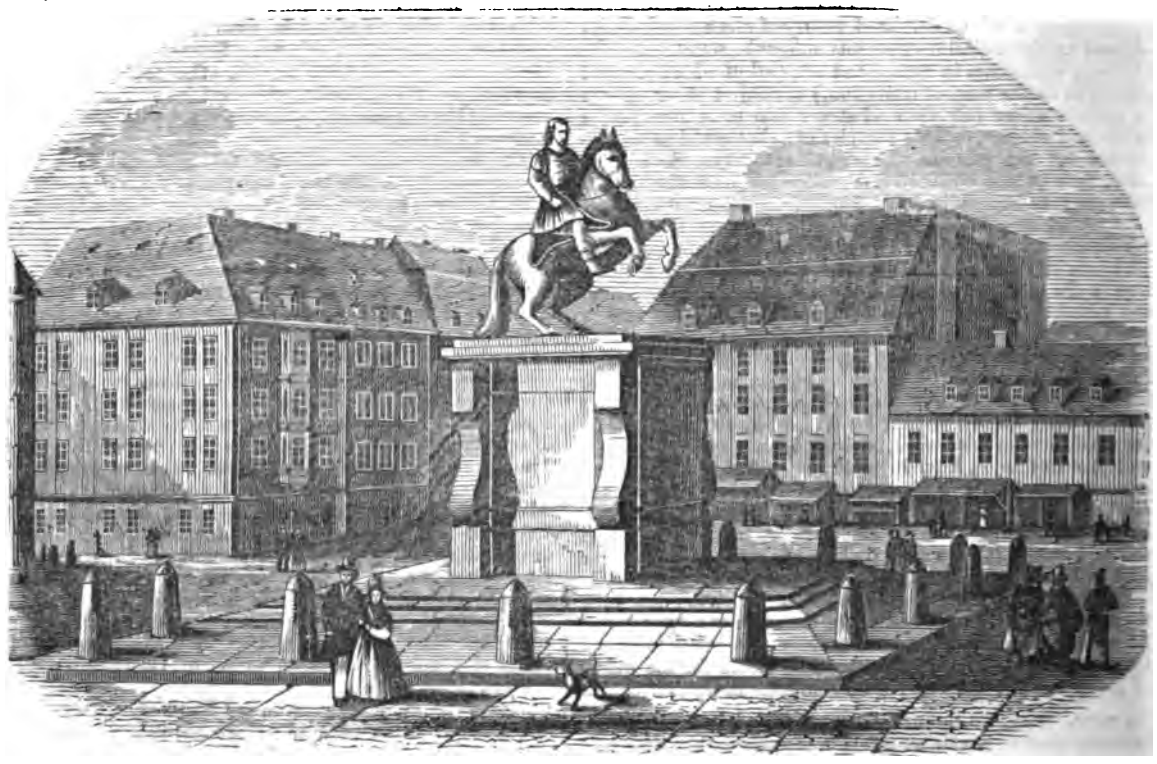
as vessels of agate, chalcedony, rock crystal, lapis lazuli, &c. The varieties of agate are great, those of moss-agate and fortification-agate being especially beautiful. The gems and cameos are numerous and valuable. There are goblets composed entirely of cut gems, valued at six thousand dollars each. A set of vessels cut out of rock-crystal is remarkable on account of the size and lustre of the specimens. Before the period of the modern manufacture of crystal glass, such vessels as these were greatly esteemed, and found only on the tables of the great. One of the most remarkable specimens in rock-crystal is a perfectly transparent solid globe, weighing fifteen pounds, and measuring nearly eight inches in diameter. There are also some exquisite carvings on wood by Colin of Mechlin, and by Albert Durer, and a large painting in enamel.

The sixth cabinet contains a collection of cleverly carved caricatures in ivory and wood, frequently adorned with enamel and precious stones: enormous pearls fashioned into a variety of odd shapes, the pearl often forming the body of a figure, while the other parts are composed of gold and enamel, and even of diamonds and other precious stones. Thus the body of a court dwarf is represented by a pearl nearly the size of a hen's egg. Also a great variety of splended and costly knickknackeries, busts and figures of animals in precious stones, beautiful figures cut in rock-crystal, watches called Nuremberg eggs, from their shape, and from the name of the place where they were made in 1500. Also a golden egg containing a variety of objects enclosed one within another, the last object being a splendid signet-ring with the motto "Constant in spite of the storm." There is also an automaton spider. A very remarkable pair of bracelets are likewise exhibited. They formerly belonged to the Princess Louisa, and contain miniature pictures, representing the one the *eye*, and the other the *arm* of the Queen Regent Maria Christina of Spain.

The seventh cabinet. Three of the Saxon princes wore the crown of Poland, and this cabinet exhibits splendid testimonies of the fact in the form of the regalia used at coronations. There are also some very clever elaborate carvings in wood here exhibited. Also cherry-stones on which are engraved innumerable heads that require the aid of a lens in order to become distinguishable.

The eighth cabinet. This cabinet greatly surpasses all the rest in value and splendour. Some wonderful performances of the artist Dinglinger and his associates are among its contents. One piece in particular attracts the notice of the visitor; it is called the court of the Great Mogul. On a throne of gold, surmounted by a splendid canopy, is seated the Emperor Aurengzebe, with guards and courtiers surrounding him, all in appropriate costume. There are one hundred and thirty-two figures in this piece, all of pure gold enamelled. This extraordinary toy occupied the artist and his assistants eight years, from 1701 to 1708 inclusive. The cost of it was upwards of eighty-five thousand dollars. Another piece, the work of this artist, represents artisans employed in their different trades, and is remarkable for its fidelity and delicate execution. In this cabinet are contained likewise the Saxon regalia, including the Electoral sword borne by Saxon princes at the Imperial coronations; a large collection of chains, collars and orders; an antique cameo of onyx, having on it the portrait of Augustus; the largest sardonyx known, six inches and a half long, and four and a quarter broad; complete suits of the most costly jewels, sapphires, rubies, pearls, emeralds, and diamonds. Among the sapphires is a splendid uncut specimen presented by Peter the Great. The diamonds are superb, and it is said that they are of sufficient value to pay off the national debt of Saxony. The diamond decorations of the gala dress of the emperor are exceedingly rich. Three brilliants in the armlet weigh nearly fifty carats each. The most remarkable stone in the collection is a green brilliant weighing a hundred and sixty carats. In this cabinet are also two rings which belonged to Martin Luther; one a cornelian, bearing a rose and in its centre a cross; the other his enamelled seal-ring, bearing a death's head, and the motto "*Mori sæpe cogita.*" There is a specimen of solid native silver from the mine at Freiberg, and a specimen of uncut Peruvian emeralds, given to the Elector by Charles V. There is also a set of native Saxonpearls from the Elster.

This immense collection of treasure, though it may indeed remind one of "the gorgeous magnificence of oriental despots, or the magic productions of Aladdin's lamp," is yet sadly obscured by the gloom of the apartments in which it is placed, and the little attention which has been paid to its arrangement. Such a collection, in the hands of persons who exhibited a due regard to neatness, elegance, and effective arrangement, would indeed present an amazing spectacle of riches and splendour, but under the disadvantages of low dark rooms, dismal iron gratings, &c., we do not recognise half its real magnificence.



EQUESTRIAN STATUE OF AUGUSTUS II., AT DRESDEN.

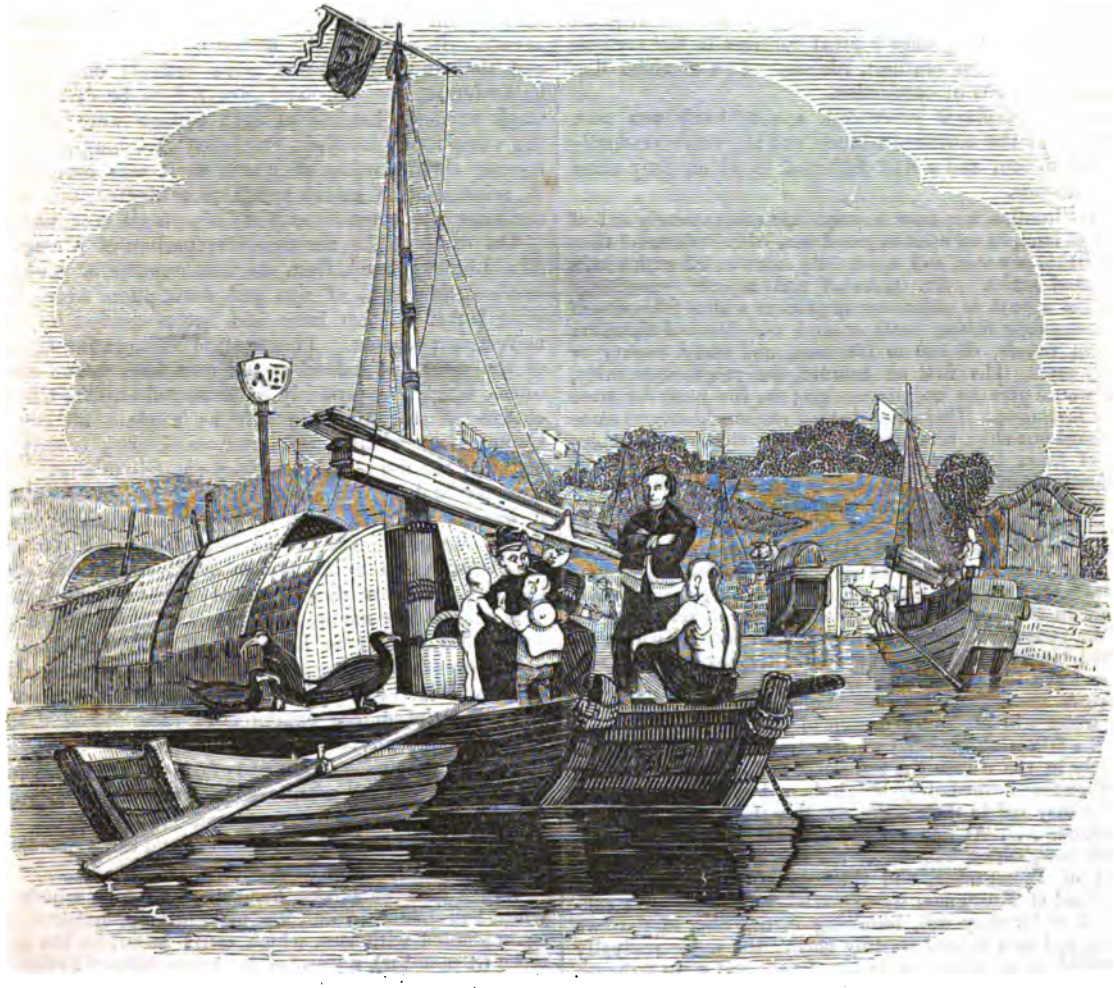
JOHN W. PARKER, PUBLISHER, WEST STRAND, LONDON.

THE

Saturday Magazine.

No. 685. MARCH 4TH, 1843. { PRICE ONE PENNY.

THE FIVE PORTS OF CHINA OPEN TO BRITISH TRADE.



CHINESE FISHERMEN.

IV. SHANG-HAI.

THE port which we now arrive at bears an important relation to late events, as will be seen by a description of its situation and commercial character. Shang-hai is situated on the Woo-sung, which flows into the estuary of the great river YANG-TSE-KIANG, or, *Child of the Ocean*. This latter is one of the most extensive rivers in the world, and passes over two thousand seven hundred miles of country in its circuitous route.

The advantageous position of Shang-hai, not only with respect to this river, but to the most important tea-districts which lie to the south, has caused it to become a great emporium of trade in general. The distance from Ning-po, the last port described, to Shang-hai, cannot much exceed one hundred miles.

The position of the capital of China, (Pekin,) and of the great canal which stretches nearly a thousand miles from north to south through China, should be traced on the map, in order that the reader may understand the importance of the towns which are seated at and near the embouchure of the Yang-tse-Kiang. From the fertile districts around the mouth of this river the supplies of rice, tea, and other provisions for the capital are chiefly drawn; the northern provinces being for the most part sterile, and insufficient in produce. Hence it follows that an enemy gaining possession of the principal seats of trade on that part of the river, is enabled at pleasure to cut off the supplies from Pekin and the adjacent country, having at command that northern branch of the canal which affords the great means of conveyance. It is not surprising then that the occupation of *Ching-kiang-foo*, and the approach towards Nankin, (both on this river), lately effected by the British, should at once put an end to the war, by impressing on the Chinese the necessity of an immediate submission.

The privilege of trading at such an emporium as that of Shang-hai will be therefore highly advantageous for the British. It is the great means of communication with Shantung and the coast of the Manchoo Tartars on the north, and with the tea district on the south. The climate both at Shang-hai and Ning-po is in summer oppressively hot, but in winter very severe, so that there is a great demand for broad cloths and furs.

In the passage from Ning-po to Shang-hai Mr. Lindsay, in the *Amherst*, passed inside the Chusan archipelago, a passage then probably made for the first time by a European ship: it was accordingly named the Amherst's Passage. The set of the tide was found to run north-east and south-west, right out of the large estuary of Che-kiang, which does not appear to discharge a powerful stream into the ocean; the sea being quite salt at low water, but of a thick muddy colour. The depth of water varies from six to eight fathoms, with a soft mud bottom.

The northern group of the Chusan islands are bold and rocky; on the smaller ones scarcely a blade of grass flourishes, and they offer a great contrast to the verdure and beauty of the southern islands. Few of them displayed any signs of cultivation.

As the *Amherst* proceeded, a sand-bank was seen near one of the northern islands, and the water gradually shoaled to four and a half fathoms, in which they came to an anchor.

Our situation was now noways agreeable; nearly out of sight of land, in an open exposed sea, with little more than four fathoms water, and apparently surrounded with shoals and sand-banks. Mr. Gutzlaff and myself ccordingly went in a boat to endeavour to procure a pilot from one of the numerous fishing boats around us. Most of them are Fokein vessels, of 100 to 150 tons, and carry twenty or thirty men. The first we boarded, the people were surly, and would give us no information; in the next we were more fortunate. Their boat having anchored, several came on board our ship, bringing fish, but no offers would induce any of them to pilot the ship into Shang-hai. This was evidently from fear of the mandarins; for though they all declared that no sum would tempt them to accompany us, yet one of them readily gave the following directions, to which we at the time paid not much attention, having so frequently received incorrect accounts from fishermen; but we eventually found them so accurate, that future navigators in these seas cannot do better than observe them:—"Take your departure from the northern island, (which we named Gutzlaff's Island), and steer N.W. by N.; you will never have less water than four fathoms; and when you approach the channel between Tsung-ming and Keangnam, the water will gradually deepen to five and six fathoms." On the following morning we saw two large junks steering exactly in the course the fisherman had pointed out to us; we therefore immediately weighed, and shaped our course under easy sail in their wake, sending the long boat a-head to sound. . . . At one P.M. we saw low land on the starboard bow, which was one of the low islands to the southward of Tsung-ming, and the tops of the trees on the mainland of Keangnam were soon after descried. We continued under easy sail, following in the rear of the two junks, and now steered west by north: the water gradually deepened as we advanced to six, seven, and eight fathoms. We now sailed at about four miles' distance from the land of Keangnam, which is one dead flat, richly cultivated and covered with high trees. The water was perfectly fresh from the time when we first saw land. At four P.M. we saw several war junks at anchor. On our approach, they got under weigh, and one hoisted an admiral's flag, and stood across our bow, firing several guns; but as we now set more sail and stood on, the fleet stood in to shore, manœuvred in such a way as to allow us to pass by them at a considerable distance, and then stood on in our wake, firing guns occasionally, while one large row-boat pushed on a-head to Shang-hai. At five P.M. we passed an extensive bank to the northward, and now steered to north-west. To the north of this bank there appears to be a passage, for we saw many junks sailing up on that side. We now had a fine breeze, with which we stood on till eight P.M. On passing one of the junks we had been following, we inquired what distance there was to the entrance of the river, which was stated to be about eight miles distant.

Leaving the ship within a few miles of the entrance to the river, Mr. Lindsay determined to proceed in his boat to the town. At each side of the entrance there is a fort: the northern one was found in better condition than most Chinese fortresses, and mounted eight guns on a platform. About a mile up the river is the small town of Woo-sung, where all vessels, on entering and quitting, take their port clearance. The river Woo-sung, which gives its name to the village at its mouth, is one of the most easily navigable in China. The only difficulties in its access arise from the extensive but even bank of shallow water, which extends between Gutzlaff's Island and the banks of Tsung-ming, from which there is a passage, three to four miles in breadth, and eight fathoms deep, to the river Woo-sung. The bar of the river presents no kind of danger. After leaving Woo-sung, the country is one dead flat, very much intersected with dykes and ditches; it is richly cultivated, and bears much resemblance to Holland. A turn of the tide caused Mr. Lindsay to anchor and go ashore. It was just the period of the wheat harvest, and the whole population were actively employed in gathering it in. The land appeared to be divided into small portions, because at each cottage were observed the women and children employed threshing and winnowing their portion of wheat as it was brought in. A great deal of cotton was also cultivated, this being the most celebrated district in China for that commodity.

On reaching the far-famed emporium of Shang-hai, Mr. Lindsay found, from the vast number of junks, of every variety both of size and description, which were lying before it, that fame had not magnified its commercial importance. This town is built on the *left side* of the river, as indeed is the case with most Chinese towns, which may probably be connected with the Chinese custom of assigning the left as a place of honour. Commodious wharfs and large warehouses occupy the banks of the river, which is deep enough to allow junks to come and unload alongside of them; in the middle it has from six to eight fathoms, and is nearly half a mile in breadth. On the landing-place there is a large temple dedicated to the Queen of Heaven, from which the city gates are distant about a quarter of a mile. The streets are narrow, and many of them paved with small tiles similar to Dutch clinkers, which give a far more agreeable footing than the slippery granite. The shops within the city are generally small, but wares of every description are exhibited in them for sale. Mr. Lindsay saw many with European goods.

The neighbouring country is dotted over with small villages, surrounded with trees in every direction. The population appears to be very great, but healthy and well fed; wheat, in the form of vermicelli and cakes, forms the principal part of their food.

Whilst we were staying here, the land from which the wheat had just been cut, was ploughed up, irrigated, and again planted with rice, which could be cut on the ninth moon (September), a proof of the extraordinary fertility of the soil. The winters are said to be very severe, and that the snow sometimes lies several feet deep for more than a month. Ice is kept in great abundance throughout the summer, but is principally used for the preservation of fresh fish. Each family appears to cultivate a small portion of ground with cotton, which I here saw of a light yellow colour. The nankeen cloth made from that requires no dye. In every cottage were the requisite implements for carding, spinning and manufacturing the cloth sufficient for their use; the remainder they sell. In several I saw the whole process in action at the same time, and took specimens away of the yellow cotton, both in its rough state, and after being manufactured into cloth. The price for a piece is from three to four mace, and the nankeen cloth from Shang-hai is said to be the best in the empire.

Provisions of all sorts were found to be cheap and abundant, with the exception of beef, which Mr. Lindsay did not procure anywhere in China. Goats were very plentiful, and equal in flavour to the best mutton. The fruits were found to be superior to those further south; peaches, nectarines, loguats, small apples, the arbutus, and various kinds of vegetables, were all to be procured at a cheap rate.

In the mouth of the Yang-tse-Kiang, and at about fifteen miles to the north-east of Woo-sung, is the island of Tsung-ming. This island is increasing yearly in

extent from the alluvial deposits of the great river. Its dimensions were estimated by Mr. Lindsay at above sixty miles in length, and from fifteen to eighteen in breadth. This island is interesting as being the largest and most populated alluvial island in the world, while it is one of the most fertile districts in China; its population is said to amount to half-a-million.

The approach to this island in a north-east direction is marked by two extensive sand-banks, joined together by a long flat which is probably passable by small boats at high water: the northern bank is overgrown with rushes, and had two huts on it. "In another century;" says Mr. Lindsay, "all these banks will probably form a fertile and inhabited island." After passing sundry bluff mud-banks and sands, to the north-west of this great bank, and meeting several junks lying at anchor, Mr. Lindsay's party landed up a small creek, and walked straight in-shore. The natives were at first very shy and timid, but sooned gained confidence; and a fine intelligent youth gladly undertook to accompany them to a town called Sin-kae, distant about three miles. The ground appeared rich; it was cultivated with rice, cotton, millet, and vegetables. It was intersected in every direction with dykes, which served the double purpose of draining the land, and irrigating it when requisite. The people do not live in villages, as is usual in most provinces in China, but hamlets, and single houses were scattered about in every direction. The population appeared immense; but the natives are healthy, vigorous, and of a fine ruddy complexion. Wheelbarrows, of a peculiar structure, are in common use for conveying the produce of the soil, and for the accomodation of travellers; they are furnished with a large wheel in the centre, which is covered, and the goods are arranged on each side of it: or the traveller himself may occupy a comfortable felt mattress on one side, and be balanced by his goods on the other. Several of these vehicles were met laden with salt of a peculiar whiteness, the produce of the island, several parts of which on the northern coast, though barren of every herb, yet have the quality of producing large quantities of this salt, which is at stated times carefully scraped from the surface. It is remarkable that the ground which possesses this peculiar property is often surrounded on all sides with fertile soil, but devoid of all saline particles.

The town is long and narrow, and contains some respectable houses and shops.

Among others, one attracted my notice, which announced in large characters that it sold Company's camlets and broadcloth; but on inquiry I was told that they had none of these precious commodities at present, but merely kept the characters on their sign to look respectable.

Apricots in abundance were sold at fruit-stalls; they resembled those of England, but were smaller in size and deficient in flavour. Having walked through the town, accompanied by a great concourse of people, and looked into various shops and houses, the party returned.

The friendly demeanour of these simple people, who now for the first time in their lives beheld a European, surpassed anything we had hitherto witnessed; and there being no mandarin in the place, no artificial check was placed to the natural friendly impulse of their hearts.

The people came in numbers with offerings of fruit, vegetables, and fish, earnestly expressing a hope that the strangers would return another day. A fine boy of about twelve years of age was so anxious to make Mr. Gutzlaff some present, that having nothing else, he took a neat bamboo carved comb, with which his hair was fastened, and gave it to him. By the time the party reached the boat, six hundred, at least, of the natives had assembled, all seeming to vie with each other as to who should be the most kind and friendly. And there is abundant evidence to prove that such is in general the true Chinese character when removed from the influence and example of their mandarins; the people desire a more extended intercourse with foreigners, and hitherto the government has anxiously interfered to prevent it.

The reader will gain a clearer idea of the immense advantages likely to result to British trade and enterprise by the opening of the port of Shang-hai from the following brief summary, abstracted from Mr. Lindsay's admirable report of the voyage of the *Amherst* to the northern parts of China, in the year 1832, to which we are mainly indebted for the details already given in the present article.

One of the chief causes of the importance of Shang-hai is found in its fine harbour and navigable river, by which it becomes the sea-port of Yang-tse-kiang, and the principal emporium of eastern Asia; the native trade of the place greatly exceeding even that of Canton.

On our first arrival I was so much struck with the vast quantity of junks entering the river, that I caused them to be counted for several successive days. The result was, that in seven days upwards of 400 junks, varying in size from 100 to 400 tons, passed Woo-sung, and proceeded to Shang-hai. During the first part of our stay, most of these vessels were the north country junks with four masts, from Teen-tsin, and various parts of Manchow Tartary, flour and peas from which place formed a great part of their cargo. But during the latter part of our stay the Fo-kien junks began to pour in, to the number of thirty and forty per day. Many of these were from Formosa, Canton, the Eastern Archipelago, Cochin China, and Siam.

The river Woo-sung proceeds from the great lake, Tahoo; it then traverses the great canal, and thus communicates with the Yang-tse-Kiang, the Yellow River, and Pekin: thence it enters the Pang-shan Lake, and flows by Soo-chow-foo, the capital of the southern part of Keang-soo, one of the most commercial, wealthy, and luxurious cities of the empire. From this place numerous navigable rivers communicate and traverse each other in every direction. Thus it appears that this river affords a commodious water-communication with the remotest parts of the empire, from Pekin to Yunan, from the eastern coast to the centre of the deserts of Tartary. The advantages which the English may derive from the liberty of trade with this place, are incalculable. Here is a nation in population nearly doubling that of all Europe, combined with a sea-coast of fully 3000 miles, abounding with the finest rivers and harbours in the world. Its ports and cities are filled with an industrious, enterprising, wealthy, and commercial population, who would all hail the establishment of foreign trade with joy.

While we dwell with pleasure on the advantages likely to result to Britain from the opening of this port to her merchants, let us not forget to contemplate with gratitude the means thus placed in our power of sending the light of the Gospel among these deluded worshippers of many gods, whose superstitions, yet but partially known to us, are in some sort to be traced in the national character, of which deceit and lying form a principal feature.

I USED to wonder why people should be so fond of the company of their physician, till I recollected that he is the only person with whom one dares talk continually of oneself, without interruption, contradiction, or censure.—MRS. H. MORE.

MEN of wicked lives would be very glad there were no truth in Christianity at all; and if they can pick out any one single article in the Christian religion, which appears not agreeable to their own corrupted reason, or to the arguments of those bad people, who follow the trade of seducing others, they presently conclude that the truth of the whole Gospel must sink along with that one article. This is just as wise as if a man should say, because he dislikes one law of his country, he will therefore observe no law at all; and yet that one law may be very reasonable in itself, although he does not allow it, or does not know the reason of the lawgivers.—DEAN SWIFT.

A CHEAP CAMERA LUCIDA,

BY SIR GEORGE S. GIBBES.

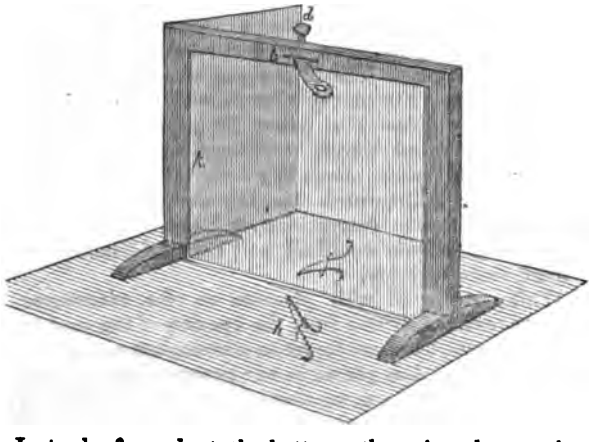
In the *Saturday Magazine*, Vol. XXI., p. 144, we called the reader's attention to an economical form of Camera Lucida, recently submitted by Sir John Robison to the Society of Arts for Scotland.

After the publication of that notice in our pages we received a communication from Sir George S. Gibbes, directing our attention to a similar contrivance invented by him, and made known to the public through the *Philosophical Magazine*, so long ago as February, 1812. The priority of claim to this useful invention undoubtedly rests with Sir G. S. Gibbes, and we readily avail ourselves of his kind permission to copy his figures and republish his account,—agreeing with him that, "a revived description may be of general interest."

THE great simplicity of the instrument about to be described may entitle it to rank among the most useful of delineators: because, to the advantage of its simple structure and applicability without straining the eyes, it adds a degree of truth not to be exceeded. Without requiring the aid of additional reflecting surfaces, this instrument represents objects as in an ordinary mirror, while it allows sufficient light to pass for the guidance of the hand behind it. Thus, by a little management both the hand directing the pencil, and the object to be traced, may be equally well-defined and clear. The following diagrams and description will fully explain the construction of this instrument, and enable the amateur, with the assistance of a cabinet-maker, to procure one for his own use.

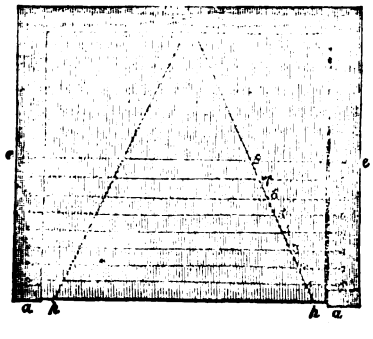
The first requisite is a piece of plate glass, a foot square, perfectly clear, polished, even, and parallel throughout. This is mounted in a frame (fig. 1), about an inch and a half wide, and an inch thick.

Fig. 1.



Instead of wood at the bottom, there is a brass wire, or a thin narrow plate, capable of holding the three sides of the frame together so as to prevent the glass from falling out. The glass rests upon this wire or plate, so that it must be firmly fixed to the feet of the frame.

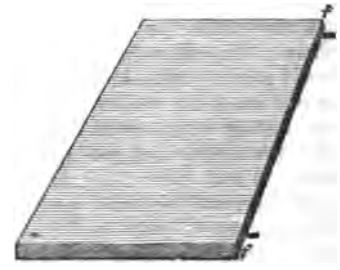
Fig. 2.



The feet must be exactly at right angles with the frame, so that when the plate is placed upon an even table it will stand perpendicular. The upper part of the frame at *b* is furnished with a long groove for the reception of a brass sight, an inch broad, furnished with a small eye-hole: this is fastened at the top by the screw *d*, which may be loosened at pleasure.

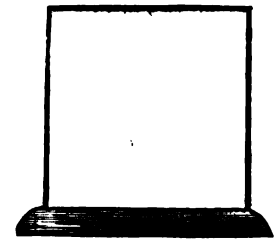
The frame (fig. 2) is divided into two equal parts beginning at the upper part, from the groove *b* (fig. 1), to the bottom of the feet *a*, or of the brass wire. The lower part from *e* is subdivided into eight equal parts, and on each side of the frame are eight equidistant holes

Fig. 3.



The board, fig. 3, is called the table. Its breadth is the same as that of the frame. It contains two brass pins, which exactly fit the holes in the frame. The table can thus be raised or lowered, so as to magnify or diminish objects correctly, according to the size required. On the opposite side of the table, at each corner, are supports, so placed that they may be conveniently pushed up or down. The supports pass through two holes in the table, and in each are eight small holes of the same size as those in the frame, so that by means of a brass wire under the table it may be kept firm in a horizontal position.

Fig. 4.



The blind (fig. 4) is made of a piece of wood, bevelled, one foot long, one inch and a half wide, and one inch in thickness. A brass or iron rod is bent so as to form a square to which the wood serves as a support. This frame is then covered with writing paper of moderate thickness.

In making use of the apparatus thus far described, place the object (*h*, fig. 1,) which is to be copied, upon a flat table on a level with the window: place some blank drawing paper on the right hand; and between the object and the drawing paper place the transparent reflecting plate of glass, mounted in its frame, and shown in fig. 1. The blind (fig. 4) is to stand at *k* (fig. 1), at right angles with the glass on the right hand, so that the drawing paper may lie in the broken shade, and a person looking through the glass from the left side will observe the object depicted on the paper. If the figure be not sufficiently distinct, you darken the blind by hanging a sheet of paper upon it: if it darken too much it may be removed further from the glass.

It is of consequence that the proper degree of shade be thrown upon the paper; because, if it be too dark, the lines of the drawing and the point of the pencil cannot be seen distinctly; and if it be not sufficiently dark, the representation will be too faint. In copying

with the assistance of the apparatus as already described no eye-hole is used, because the eye is easily kept in a suitable position when the drawing is properly placed; but in the experiments about to be described, where the objects are diminished or magnified, whether a picture or a prospect in perspective, the eye-hole must be used, since it is necessary to look constantly at the same precise point of view.

The diminishing of an object is effected by raising the height of the table. Since an object placed on the left side of the glass is always represented on the right side, although the surface of the table be not of a uniform height, it will be found that, by taking a fixed point of view, the object will be diminished, the nearer the reflected image approaches to this point, and will be magnified as the reflected and transmitted image is made to recede from the eye. Or rather, the image will appear larger than the object when it is removed further from the eye in a fixed position than the object itself, and *vice versâ*.

This may be more clearly illustrated by referring to fig. 2. The parallel lines 1, 2, 3, 4, 5, 6, 7, 8, represent the different heights of the table. If now the line *h* were to be diminished, it would be reduced $\frac{1}{4}$ upon the table at 1, $\frac{1}{4}$ at 2, $\frac{1}{2}$ at 3, and $\frac{1}{4}$ at 4, as is shown by the lines of sight where the parallel lines intersect.

Fig. 5.

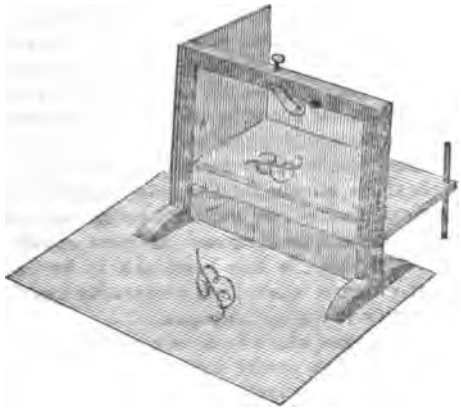


Fig. 5 represents the instrument, where the letter B is diminished one half; the table with the paper being placed in the fourth hole (fig. 2.) The object must be viewed through the eye-hole, which is on the left. By this method of diminishing, it is easy to take in prospects and objects in perspective.

In order to depict vertical objects the following simple additions to the apparatus are necessary:—

Fig. 6.

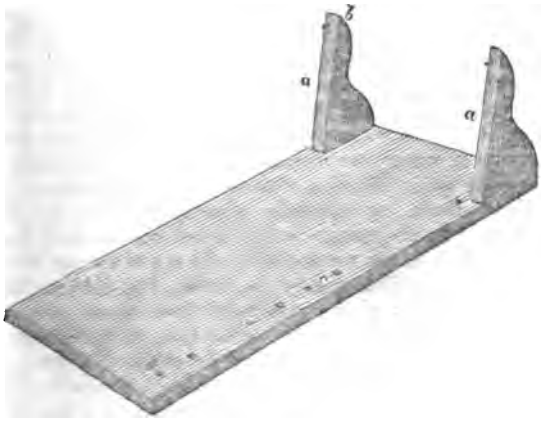


Fig 6 is a board two feet and a half in length. At the distance of six inches from one end, and at the width of the glass plate with its frame, two holes are bored so that the supports of the table may pass through and be placed upright. Behind the holes two perpendicular pieces of wood, *a a*, are fastened; and at the upper part two props which may pass into the holes of the table, into which the feet were before fixed, so that the table may be secured both at the top and bottom, and all shaking prevented.

Holes from *c* to *d* are to be bored in the board for the reception of the sight-piece, shown in the next figure. This sight-piece may be of brass or wood: its height is about six inches, and it is furnished at the top with a round brass plate one inch in diameter, in which is the eye-hole.

Fig. 7.

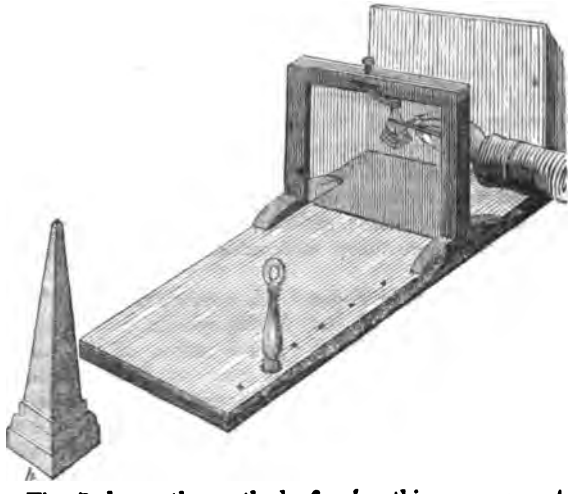
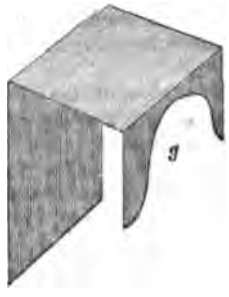


Fig. 7 shows the method of using this arrangement. The paper is attached securely to the table; and the reflecting glass plate placed about six or eight inches from it upon the board, and parallel with the table. The blind, (fig. 8,) which is made of wood, pasteboard, or

Fig. 8.



paper, then covers the space between the glass plate and the table, so that the opening *g* may be on the right hand. The sight-piece is then placed in one of the holes, so as to give the desired power of diminishing, the observer taking care that his head does not intervene between the object and the glass. In this way objects are diminished, and may easily be drawn upon the upright paper. All kinds of objects, such as plants, academy figures, &c., may thus be copied under circumstances in which the camera obscura, as usually constructed, could not be conveniently employed.

Mr. Horsley, in his *Britannia Romana*, making a sort of apology for that work in his preface, has these words: "I have always looked upon it as an instance of Divine Wisdom, that it should be so ordered that different men have such different tastes and inclinations. By these means the several parts of knowledge are more cultivated: and I think we owe our thanks to any one who will apply himself to the study of any particular thing, though it seem minute, and may not suit our taste or inclination to pursue it ourselves. This gives us, at least, an opportunity of knowing, on easier terms, what can be said on that subject."

LETTERS TO THE READER.

No. IV.

MY DEAR READER,

Will you walk with me awhile along the beach from Dover eastward? The various objects in the way will suggest ideas that may remind us of the benefits which natural science has conferred upon society, and, receiving health and pleasure, knowledge, and the power of doing good, from the study of creation, we may the more earnestly desire that every one blest with reason should share, by the extension of practical education, the same bodily, mental, and moral improvement.

Our path lies over a belt of shingle, which runs between a range of perpendicular chalk cliffs and the sea. At one or two points enormous masses of chalk that have fallen from the toppling cliff appear to block up the route, but the receding tide leaves room for passing travellers. Several irregular lines of tattered sea-weed mark the various levels of previous tides. The shingle, which is formed of the smoothest stones, has just been washed by the ebbing waves, and looks like a polished tessellated pavement; shifting, however, at every tide, and thrown into steep embankments by the sea-ward storms.

It is observed in Fellows' *Excursions in Asia Minor* that the shingle of the Mediterranean is composed of stones flattened by the gentle action of that comparatively tideless sea. But here its form evidently depends upon the geological character of the materials. Flints, by far the most numerous, are worn down to oval shapes, while granites, of which there are several beautiful varieties, are met with in flattened pieces. Nodules of chalk become tolerably well rounded. The flints are of all colours; many of the purest black, and others variegated with half-transparent chalcedonies. Here and there a sparkle of crystallized quartz, or flinty spar, reflects the sunlight, and adds to the brilliancy of this natural mosaic. The more closely we watch the motive force of water in its arrangement of these specimens from every neighbouring rock, the less we shall miss the smoother but less interesting foot-way of the Marine Parade.

You see that the surface of the blocks of chalk that face the sea are fretted and honey-combed by the action of the waves. They remind me of the dissection of alum by the solvent power of water. If we place in water a mass of alum, all traces of whose exterior crystalline form has been broken away, the fluid will dissolve it unequally in different directions, "until an immense variety of geometrical forms appear stamped as it were, or carved upon its substance." A variety of forms are also left by the washing action of the wave upon the chalk; but its chemical and mechanical composition being much more complex than that of alum, the resulting bas-relief is far more various. Casual inspection is enough, indeed, to show it to be a very museum of *organic* forms. Fossil shells first catch the eye, and of these, the most numerous are sea-eggs, of a circular form, from one to three inches in diameter, flattened upon the under surface, and either conical or more or less rounded above, according to the different species to which they severally belong.

We are accustomed in common language to consider the skeleton of an animal as necessarily internal; but the *organ of mechanical support*, whether clothed by the softer tissues, as in man, or placed externally, as in the tortoise, is in either case correctly termed a skeleton. In the sea-eggs it is composed of many pieces, arched like a dome over the more perishable parts. Embossed with admirable patterns, and defended with long projecting spines, it forms a coat of armour of surpassing workmanship. We will not stand to examine it more in detail at present, as I wish to give you drawings of the more perfect specimens that I have collected here and elsewhere, when I shall devote a letter to the history of these interesting animals.

You observe as we extend our walk the countless myriads of sea-eggs that are embedded in the chalky rock. As far as the eye can reach, every part of the cliff is filled with fragments of the shells. Not a generation, but a whole race from its creation to its extinction, must be here interred: for the living species which are met with at the present day are distinct from these, although formed upon the same general plan of construction. And here is indeed an admirable proof of the unity of creation. Every fresh observation strengthens the idea, that not only different species which existed at periods remote from one another, but that all animals, however seemingly dissimilar in external appearance, are created upon one sublime and simple outline. The skeletons and other organs of lost animals that are found buried far below the surface of the earth, are analogous in design to those of corresponding and existing species; thereby implying, through a series of ages, the uninterrupted agency of one Omniscient Creator.

Moreover, every organ of the human body passes during the progress of its growth through the same successive stages as can be traced in ascending from the simplest to the most complex of the inferior animals. The cartilaginous and flexible condition of an infant's skeleton answers to the state of bone as it exists in fish. Strength is gradually imparted to this feeble framework by the deposition of microscopic crystals of a hard inorganic salt throughout the body of the cartilage. These crystals are first produced at a certain number of known points, or centres of crystallization; and the reason why fish, for example, seem to be furnished with so large a number of separate bones is, that these centres, which extend and in many cases grow into each other in man, in them remain for the most part unconnected. The original plan of organization being the same, the amount of development under different conditions is unequal. Cartilage in fish continues to be cartilage, while in the human infant the Creator advances the same form of matter to higher purposes.

Even in sponge (which is an animal) similar microscopic crystals of an earthy nature have been discovered to be scattered throughout its substance, but not in sufficient number to form a solid support to the more delicate materials. Stooping down to examine the refuse which the last tide has left upon the beach, we readily collect at least three recent species of branching sponges. Accustomed to the undivided form of this animal, which is imported from the Levant for domestic use, we are apt at first to neglect the beautiful natives of our own shores. Of the form of coral, but destitute of its stony skeleton, these soon become equal favourites with the young observer. The largest and most frequent kind is of a light fawn colour, and rising from a stem about the thickness of a cedar pencil, divides into numerous and slightly flattened branches, which end abruptly in lengths from one to six or seven inches. The small holes upon the surface of the branches are so many entrances to internal canals through which pass currents of water, the marine animalcules suspended in the water being the food of these curious animals.

From these we naturally pass to those large and branching fossil sponges which stand out in such bold relief from the sea-worn chalk. In the blocks of chalk that have been dissected by the waves, studded with sea-eggs and other shells, are best seen these gigantic sponges, in casts of black and brittle flint, forming a strong contrast to the white bed in which they are preserved. Several hundred different forms of these curious fossils have been discovered by geologists. Many of these are to be found in the neighbourhood of Dover, some branching like the recent species before described, some funnel-shaped with slanting lip, and others, again, like enormous fungi expanding from a thick footstalk

into a broad and solid disk, on the circumference of which may be observed the orifices that led into the alimentary canals. The eye soon becomes educated to detect organic form. Where without knowledge we saw but so many shapeless stones, observation multiplies the objects of our admiration. Whereas we could see neither design nor beauty in these inanimate remains, the due exercise of our faculties leads us to fresh evidences of a PERPETUAL CREATOR.

The property of sudden expansion possessed by water during its passage into ice is occasionally illustrated on a large scale along this crumbling sea-wall. The numerous crevices in the substance of the chalk which are caused by successive changes of temperature and moisture, allow of the lodgment of drainage-water from above. The freezing of this water during the winter months transforms it into solid and expanding wedges, which rend away large masses of the rock. The danger of frequenting the overhanging cliff at such a time is obvious.

Crows and gulls are the natural scavengers of the shore. Several hours *before* a gale sets in, while yet the heavens are cloudless, and the unpractised eye is quite unable to detect the coming change, the latter birds appear with unerring instinct upon the spot where dead fish, and other animal substances which constitute their food, will shortly be thrown up.

The awful hurricane that swept over Europe during the middle of the month of January last, and which visited this shore during the night of Thursday, 12th January, was here preceded by lovely weather. Before the noon of that day I remarked the sudden appearance of six gulls upon the cliff, while the sea was still blue and the sky without a cloud; and going upon the beach again, four hours after sunset, those ominous birds were still, to me, the only harbingers of the tempest. On the following morning, however, the breakers were appalling; the shore was strewn with portions of a wreck, and the feast of carrion had commenced.

Still it may be as well to observe that these partial migrations of gulls can only be considered as weather-signs, when taken in conjunction with other circumstances. After a long continued calm, for instance, these birds visit different shores and shallows in search of food, at which time they are not necessarily the forecomers of a storm. In the same way, on board ship, cats are certainly very playful before a gale comes on; their fur is highly charged with electricity; they fly from rope to rope, and scamper up the rigging in an unusually excited state, carrying their tails arched in a peculiar manner. It is common in such a case to hear a sailor say, "The cat has a gale in her tail." I have, however, seen this without bad weather following, although each sign has undoubtedly its positive value when weighed with the indications of the marine barometer.—But to return to the aërial scavengers.

Some years since, during a season of extraordinary plenty, large numbers of dead fish were cast away near the city of New York, and yellow fever speedily attacked the population as a consequence of the impurity of the air, caused by the neglect of the putrefying mass. The blood of animals which breathe the gases and vapours that escape from decomposing organic matter becomes poisoned. Three simple agents are appointed by a merciful Providence which, at such places where their actions are united, at once prevent the corruption of animal fluids, and teach man the means of extending this prevention throughout the habitable globe. 1st. *Water*, in the form of tides, rivers, and rains, dissolves in part the solid, and dilutes the liquid, portions of offensive substances. 2nd, *Air*, dissipates the gaseous and vaporous products of the same. 3rd, *Living scavengers*, worms, beetles, carrion, fish, birds, and beasts, devour or remove what remains. Wherever these agents are employed, plagues and putrid fevers are unknown. But, unless the dissolving, diluting, and *locomotive* powers of water, and the ventilating force of air, are added to the instruments of the scavenger, disease ensues.

The severe pestilences that used to recur in London at intervals of about every twelve years, previous to the great fire of 1666, were the natural effects of defective sewerage; and the evil to this day is only lessened, not prevented. In the parish of St. George's, Hanover Square, which is a wealthy part of the Metropolis, one female, upon an average, dies annually in every fifty-seven of the population; but in Whitechapel, under less favourable conditions, the annual mortality of females is one in twenty-eight. In the latter district direct communication between private houses and underground sewers is comparatively rare. A resident surgeon does not recollect seeing a single sink in the dwellings of the poor; the refuse water, &c., is thrown upon ill-paved courts, from whence it is evaporated into the atmosphere. To breathe this corrupted air, entails a double amount of death upon the parishioners, over those of other places where intelligence is preventing these causes of disease. The instincts of carnivorous birds should have earlier taught us the duty of keeping clean the surface of the earth.

> See man from nature rising slow to art!
> To copy instinct then was reason's part;
> Thus then to man the voice of nature spake—
> Go, from the creatures thy instructions take:
> Learn from the birds what food the thickets yield;
> Learn from the beasts the physic of the field;
> Thy arts of building from the bee receive;
> Learn from the mole to plough, the worm to weave;
> Learn of the little nautilus to sail,
> Spread the thin oar and catch the driving gale.
> Here too all forms of social union find,
> And hence let reason, late, instruct mankind.—POPE.

But reason can do more than copy instinct. Observation of the material world is constantly being rewarded with discoveries important to the well-being of society. When we hear of inventions originating with so-called uneducated men, it will be found upon inquiry, although they may not have had the advantage of scholastic training, that the faculty of observing natural phenomena had been early exercised. I would instance Mr. Read, the inventor of the stomach-pump. Being the son of a Kentish farmer, he was brought up to the same employment. Having undertaken the laying out of some gardens for the clergyman of his parish, this person was led to consider the best means of distributing water for horticultural purposes. By observing the conditions under which fluids are most easily transferred from one place to another, he soon effected an improvement in the small engine that is usually employed for watering plants.

It is instructive to notice more particularly this stage in the inventor's mind. He had observed certain facts, and by mental reflection, with reading, had risen to a knowledge of the principles which governed them. But up to this point he laboured on a beaten road. Most practical men were acquainted with the facts, such as the amount of atmospheric pressure upon fluids, &c.: many well knew the principles of the science. The third step in the inquiry was to apply these principles, and the mechanical apparatus that illustrated them, to fresh conditions. If water could so easily be removed from one vessel to another by a common syringe, why not liquid poisons from the stomach? By modifying the syringe then in use, and attaching to it a long elastic tube intended to be passed into the stomach, Mr. Read successfully answered this important question, and has been the means, under Providence, of preserving many valuable lives. The death of the Bishop of Armagh, which occurred in the year 1822, from taking laudanum by mistake, had stimulated Mr. Read in carrying out his experiments, and Sir Astley Cooper, upon being shown the instrument in its perfect state, exclaimed, "Had you brought me this three weeks ago, I could

have saved the life of a young lady, who died from taking laudanum. I sat hour after hour by her side, watching her progress to dissolution, without being in the least able to avert her fate."

The history of such discoveries made by the benefactors of our race are the charts of education. The foundation of all natural knowledge, from which arises so much of human happiness, is the observation of matter by the senses. "This foundation must be crowned with a superstructure of thought and reason." But observation, of soil for example, is as necessary to the farmer who practises the art of cultivating land, as it is to the scientific chemist who undertakes to analyze earths into their elemental parts. Both, by handling, must acquaint themselves with such properties of matter as have reference to the objects that they have in view. For this reason I would that specimens of soils were to be seen in every village free-school, from which the eye of every boy might be taught the physical characters of the materials that yield them food. Few might be able to grasp the principles that preside over the phenomena of nature; still fewer might possess the reflective power to discover fresh combinations of facts; but all would be better able to avail themselves of the arts of life.

An active mind is always led on from observation to experiment; it not only "carefully observes phenomena as they spontaneously present themselves in the ordinary course of nature, but purposely contrives and varies circumstances," in order to view them under so many different conditions. It was by the experimental vaccination of his own children that Dr. Jenner obtained the knowledge and the means of saving, in his own life-time, the lives of more human beings than Napoleon sacrificed. Dr. M. Von Katona, an Hungarian physician, in a very malignant epidemic of the measles which occurred in the winter of 1841, inoculated 1122 persons, either with a drop of fluid from the eruption, or with the tears of patients suffering from that disease. This experiment failed only in seven per cent.; but ninety-three in a hundred took the measles in a mild form. Not one died. I mention these examples to show the important consequences that flow from the habit of observing and experimenting with natural phenomena.

Moreover, the desire of childhood for associating with nature is a provision for its education. It is endowed with the blessing of receiving exquisite pleasure while in the act of reading knowledge as it is written in capitals upon a beautiful creation. Its instinctive love for the open air leads towards objects expressive of Almighty power and goodness. Even with respect to physical health, so impressed are the highest authorities upon the subject, of the wholesome effect of sun-light and pure air upon the growing constitution, that Sir Astley Cooper not only hired for his delicate infant a house which stood alone and exposed to free atmospheric currents on every side; but ordered the child, whenever the weather permitted, to have its meals in the open air. With all the powers of art at his command, he recognised these simple means as the most potent remedies.

The craving after artificial toys which many children exhibit is only an artificial appetite growing like a weed upon the neglected faculties of our being. But the taste for natural objects clings to the last ruins of human nature. An English captain, a prisoner, and afflicted with insanity, was confined for years during the war with France, in an hospital at Paris. It was the custom, some forty years ago, even among civilized nations, to chain the more violent madmen in dark and unwholesome cells. The Englishman in question, being subject to the most furious paroxysms, aggravated, no doubt, by national prejudice against his keepers, had long been closely fettered. Pinel, an illustrious and humane physician, believed that the cure of this unfortunate class of patients would be hastened by increasing their liberty and social comforts. He had earnestly laboured to beget public confidence in the power of kindness over the insane, and now obtained the consent of his government to unchain, at his own personal risk the lunatics of the hospital in which the English captain was secured. This fact has already been recorded in the *Saturday Magazine*, but I wish to call your attention more particularly to the effect of liberty upon our unhappy countryman. After jeering his keepers with cowardice and daring them to unloose him at their peril, he was brought from his cell, where the direct rays of sunlight could never reach him, into a court-yard open to the heavens. The powerful muscles (for his bodily strength had once been great,) with which he had just threatened vengeance upon those around him, were paralysed by the kindness of Pinel, and by the light of the external world. "Oh! how beautiful!" were his first words, as he fell upon his knees, and wept like a child at the glory of creation. From that hour he was a calm and altered being.

Children do not readily tire of listening to lessons based upon the evidence of their senses. Walking as with ourselves, between the sea on one side and a chalk cliff on the other, let them compare the living marine animals with the fossil forms of organic bodies. Tell them that under the microscope the whole substance of the chalk is found to be filled with the remains of animalcules which served as food to the larger species. And point out to them the level and alternate layers of chalk and flint, piled one above another, which stretch along the coast as far as the eye can reach. The regularity of the strata will enable the youngest to perceive that the cliff must be *the sediment from a fluid;* the resemblance of the fossil, with the living forms, can leave no doubt in their minds but that *that fluid was an ocean.* Remind their hearts of the infinite power of God over the matter of his own creation, and they will praise his omnipotence for raising up dry land for the abode of man.

Compare in your own mind, my dear reader, the effects of such repeated lessons with the results of our education derived exclusively from books, which then become irksome. Follow the young observers home, and watch the interest with which they read about the objects that are associated with their daily walks and occupations. Witness the healthful countenances beaming with fresh intelligence and innocent pleasure after each excursion. Regard the ease with which the various forms that characterize the different kinds of matter are detected and described, and reflect how much of the health and happiness of their future homes depend, under God's blessing, upon their habit of observing with accuracy the phenomena of matter. For we ourselves are formed of this created matter. Our frames are liable to be influenced by every material agent. Our food is wholesome and abundant in proportion to the practical knowledge which we possess of seeds and soils. Diseases are as easily prevented, as they are hardly cured, if early observation has taught us the habit of weighing the value of small beginnings, and of warding off their remote effects. Lasting intellectual pleasure is as richly found in the study of creation as it is sternly denied us from selfish and artificial sources. Furthermore, the invisible things of God, even the eternal attributes of His power and goodness, are clearly seen by the things that are made, so that we are without excuse in neglecting these simple means of health and wisdom. For the present adieu!

Believe me, still yours affectionately,

F.

THOSE things are to be held possible, which may be done by some person, though not by every one; and which may be done by many, though not by any one; and which may be done in succession of ages, though not within the hour-glass of one man's life; and which may be done by public designation, though not by private endeavour.—BACON.

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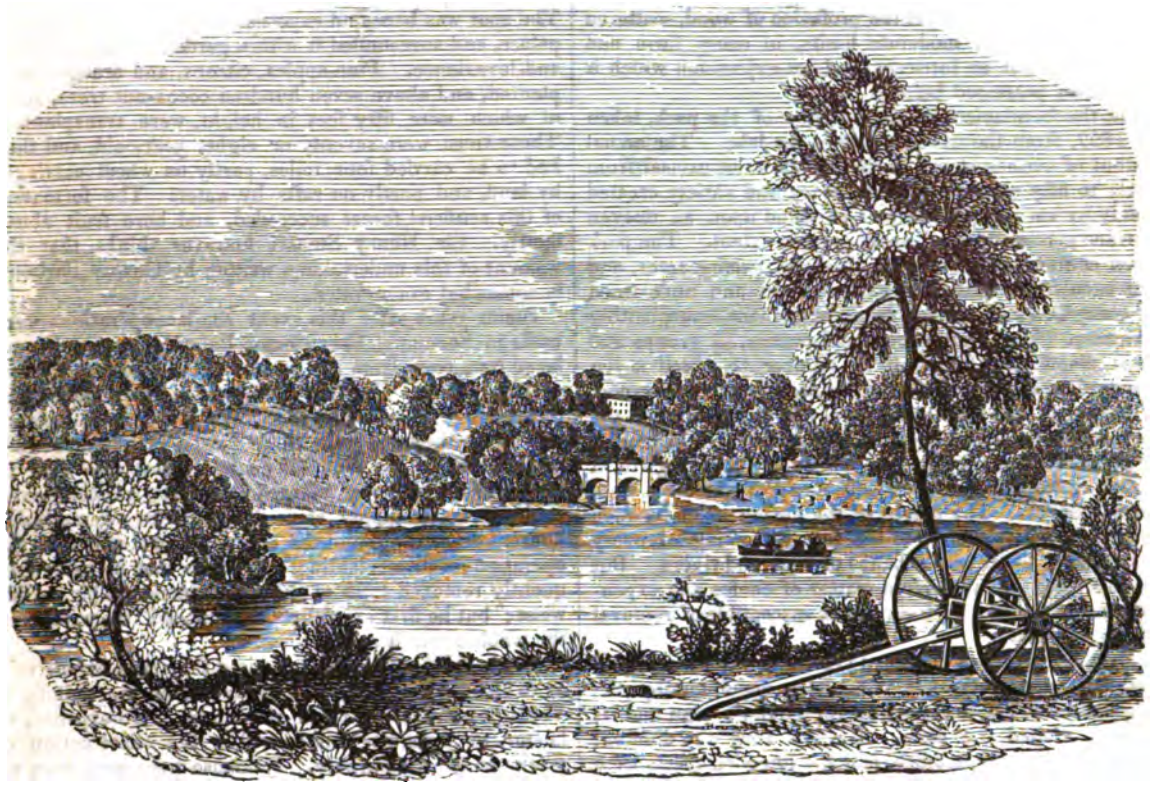
THE TRANSPLANTING OF FULL-GROWN TREES.



VIEW IN SIR HENRY STEUART'S PARK AT ALLANTON.
(As wooded by the Transplanting Machine.)

I.

Such sentence past, where shall the Dryads fly,
That haunt yon ancient vista? Pity, sure,
Will spare the long cathedral aisle of shade,
In which they sojourn. Taste were sacrilege,
If, lifting there the axe, it dared invade
Those spreading oaks, which in fraternal files
Have paired for centuries, and heard the strains
Of Sydney's, nay perchance of Surrey's reed.
Yet must they fall: unless mechanic skill,
To save her offspring, rouse at our command,
And where we bid her move, with engine huge,
Each pond'rous trunk, the pondrous trunk there move;
A work of difficulty and danger tried,
Nor oft successful found.——MASON. *The English Garden.*

FROM the delightful effects which they everywhere produce, trees must always be the grand and effective materials of real landscape, whether we prefer the deep seclusion of the grove, the open richness of the park, or the endless charms of the woodland scene. The other materials of the picture are not so easily controlled: the form of the surface of the land cannot be greatly altered, rocks are too ponderous, and water can be commanded only under certain circumstances. But trees, shrubs, and bushes can be raised anywhere, and there is no situation so utterly hopeless, that may not be rendered beautiful by wood planted abundantly and judiciously.

Few persons begin to plant in early life, and that which is long deferred many omit to do altogether. He who possesses a land estate is naturally desirous to shelter and embellish it; but as it is more delightful to create than to contemplate, so it often happens that finished places where scarcely any thing more is to be done, are not always sought after by the active and the wealthy. New sites are frequently preferred to improved residences, and every one feels the pleasure of contriving his own accommodations, and imagining and composing his own landscape, and looks forward with delight to the time when his wood shall have attained some degree of maturity. But trees are of slow growth: if they be raised from seed or planted as saplings the grandchildren of the planter are probably the first to derive advantages from them. To such persons, the plans of Sir Henry Steuart, Bart., must be invaluable. By an improved method of transplanting, he has succeeded in producing the immediate effect of wooded scenery. Single trees and groups have been distributed at pleasure in all sorts of soils and exposures, and applied to the composition or the improvement of real landscape. Instead of lopping and mutilating the trees as was generally done by previous transplanters, no loss of either spray or branches is suffered, and, what is still more important, the process involves no permanent loss of health and vigour in the trees; while the plan is easy and the expense very trifling.

There are abundant proofs of the efficacy of Sir Henry Steuart's admirable method of transplanting full-

grown trees, but we need not refer to more than one of these interesting evidences of his skill and sagacity, and that is his own park, which was originally a piece of waste land containing no water and scarcely a tree or a bush. During the summer of 1820 the water was introduced, and in that and the following year the grounds immediately adjoining were abundantly covered with wood. Groups and single trees, grove and underwood, were introduced in every style of disposition which the subject seemed to admit. Where the turf receded from or approached the water, the ground was somewhat bold and irregular, although without striking features of any sort; yet the profusion of wood, scattered over a surface of moderate limits, in every form and variety, gave it an intricacy and an expression which it had never possessed before.

In the frontispiece is given a view of the park, taken in 1827, from the western side of the lake. The actual extent of surface shown in the cut does not exceed from forty to fifty acres, but the intricacy and variety created solely by various dispositions of wood upon an uneven surface give an idea of much greater extent. The park itself contains about one hundred and twenty acres, and has been abundantly clothed with trees and underwood of every common species by means of the transplanting machine. The single trees and bushes, in groups and open dispositions, amount in number to about seven hundred, exclusive of close plantations and copse-wood. The size of the trees when removed was not great, the largest not exceeding from thirty to forty feet in height, or from three or three and a-half to five feet in girth at a foot from the ground: but many of the trees were much smaller. The height of the bushes or underwood removed was from four to ten feet, consisting of every sort usually found on the banks of lakes and rivers But on this plan, size is a mere matter of choice and expenditure, for the largest trees are as susceptible of removal as the smallest.

By the autumn of the third year after the execution of the landscape scenery, a committee appointed by the Highland Society to report on Sir Henry's plan and its success, visited the park. By this time the different parts seemed to harmonize, and the intended effects were nearly produced.

What it was intended to bring forward appeared already prominent—what was to be concealed or thrown into the back-ground began to assume that station. The fore-ground trees, the best that could be procured, placed on the eastern bank, above the water, broke it into parts with their spreading branches, and formed combinations which were extremely pleasing. The copse or underwood, which covers an island in the lake and two promontories, as also an adjoining bank that terminates the distance, was seen coming down nearly to the water's edge. What was the most important of all, both trees and underwood had obtained a full and deep-coloured leaf, and health and vigour were restored to them. In a word, the whole appeared like a spot at least forty years planted.

The reader is not to suppose that Sir Henry Steuart is the inventor of the art of transplanting full-grown trees, although he is probably the first who settled the art on a scientific basis, and so far improved it as to command success. It may be interesting to the general reader to sketch very briefly the history of this art. He will thus be enabled to appreciate better the improved plan which shall be given in another article.

The ancients seem to have acquired some skill in the transplanting of grown timber. Theophrastus states that the Greeks not only replanted the plane tree when thrown down by the wind, but sometimes removed other large trees. Pliny mentions that the Romans transplanted elms twenty feet high, to be used in their vineyards as poles for training the vine. Seneca the younger says that an entire orchard of full-grown trees was removed near the villa of Scipio Africanus, and that after a season or two they flourished and bore fruit well. But in all these instances it was usual to cut off all the spray, the smaller branches, and even the large ones to within a foot of the stem; so that they did little more than transplant the old trunks of trees, the whole of the vegetation being renewed after the removal.

The art seems to have been neglected during the middle ages; but it was revived by the moderns. One of the most remarkable instances of it is the one reported of Count Maurice of Nassau, when governor of Brazil in 1636. At that time Brazil was a Dutch colony, and like most Dutch colonists he fixed his abode on the shore, or rather upon an island at the confluence of two rivers. The spot was bare and exposed, but the Count erected a palace, and surrounded it with a garden of great extent and luxuriance. Pine-apples, citrons, and oranges were planted, and above seven hundred cocoa-nut trees, some of which were fifty feet in height, were transplanted. These trees were seventy or eighty years old, and they had to be carried four miles, partly on wheel carriages by land, and partly on rafts by water. The formation of this artificial forest succeeded, and bore fruit abundantly. Sir Henry Steuart however thinks that the account of this undertaking, written by Gaspar Barlæus, is somewhat exaggerated.

Some years after this event similar operations were made in Europe. The Elector Palatine removed some large lime trees from the forest of Heidelberg to a slope near his palace. They were removed at Midsummer, and the heads of all were lopped. We learn from Evelyn, that about the same time M. de Fiat, a French mareshal, removed large oaks at his chateau; and also that "a great person in Devon planted oaks as big as twelve oxen could draw, to supply some defects in an avenue to his house." Evelyn found the elm to be best suited to the operation of transplanting. He says that he had "frequently removed trees of this sort almost as big as his waist;" but he first carefully "disbranched" them, leaving the whole summit entire.

Lewis XIV. of France practised the art so extensively as to change the whole face of nature in the vicinity of Versailles and other royal residences. No expense, or labour, or ingenuity was spared in the construction of machines for the purpose. Immense trees were torn up by the roots, erected on carriages and removed at the will and pleasure of the royal master.

To order the march of an army was the effort of common men and every-day commanders, to order the removal of a forest seemed to suit the magnificent conceptions of a prince who, in all his enterprises, affected to act upon a scale immeasurably greater than that of his contemporaries.

Thus the forest called the Bois de Boulogne was removed from Versailles, a distance of more than seven miles, to the present site; and at Mont Louis, a small chatean near the foot of the Pyrenees, a space destitute of trees was in the course of a few weeks covered with forests and groves. Le Notre, the artist who laid out the gardens of Versailles, and planted St. James's and Greenwich parks, was employed in these great undertakings; but they do not deserve high praise, as they were effected by vast mechanical power, and not by science, and the trees were sadly torn and mutilated. The great transplanting machine used in these operations was kept at Versailles until about the period of the French revolution. The object seems to have been to raise the tree with a large clod of earth round its roots, and to move it along in an upright position to the destined spot. Sometimes a trench was cut round the tree, and filled with water, which becoming solid with the first hard frost, the clod of earth was cut out in one large solid mass. But the weight of the tree was thus greatly increased, and in the case of large trees they could be raised and removed only by powerful cranes. They were transported on a low platform with small wheels, thus requiring, even for a small tree, a very large expenditure of animal power.

On this plan many large trees were moved at Blenheim and elsewhere in this country.

Cotemporary with Evelyn was Lord Fitzharding, a nobleman who seems to have adopted a far more natural and scientific method than any of his predecessors in the art. His plan was to sever the principal roots at some distance from the tree; to remove the earth, and by inclining the tree gently on one side to get at the tap-root which was also severed: the tree was then restored as nearly as possible to its former position, and allowed to remain during one, two, or three years, until a fresh growth of roots and fibres allowed it to be removed with advantage. Another method was to lay bare the roots, and to cut through all except four principal ones on the four opposite sides of the tree so as to support it, then to allow the tree to stand a year or two, and finally to remove it with as much of the clod as possible. Sir H. Steuart admits that this sensible plan originally suggested to him the basis of his own method.

About sixty years after the time of Evelyn, Brown appeared as professor of landscape gardening: he improved the means before used for transplanting full-grown trees. His "transplanting machine" consisted of two very high wheels, an axle, and a pole; and when the trees were struck a truck wheel was used at the end of the pole: when the tree was loose the pole was set erect and lashed to the stem; and a purchase being made fast to the upper part of the pole, the whole was pulled at once and drawn horizontally along. But this plan was liable to the same objections as those of his predecessors, namely, that the top was pretty severely lopped or lightened, and sometimes quite pollarded; the roots were also cut round to the depth of the fibres, and only two or three feet out from the trunk; this defacement of the tree seems to have been regarded as necessary by all planters down to the time of Steuart.

It is scarcely necessary to trace this history further. Subsequent planters adopted the method, more or less varied, of Lord Fitzharding, but all the plans included the mutilation of the tree, a practice which the celebrated gardener Miller was the first to blame. He observes truly that "were planters fully aware of the doctrine of the circulation of the sap, and the curious anatomy of plants, they would perceive that a tree is as much nourished by its branches as by its roots." After remarking that planters are in too great haste to anticipate the slow but certain effects of time, he gives three grounds of objection to the removal of full-grown trees. 1st. That lopping and cutting off the tops or side boughs at the period of removal is utterly ruinous to trees. 2nd. That if trees be removed with large heads, it is next to impossible to maintain them against the violence of the wind in an upright position. 3rd. That trees when transplanted are short-lived, five or six years being the average duration: that in one case oaks were found to thrive beyond all expectation, but they died at the end of fifty years; whereas according to the characteristic properties of this tree they should have been increasing in vigour.

In another article we will endeavour in a brief outline to show how Sir Henry Steuart obviated these objections.

THE Macedonian monarch, wise and good,
Bade, when the morning's rosy ray began,
Courtiers should call, as round his couch they stood,
"Philip! remember thou'rt no more than man.

"Though glory spread thy name from pole to pole,
Though thou art merciful, and brave, and just;
Philip! reflect, thou'rt posting to the goal,
Where mortals mix in undistinguished dust."

CUNNINGHAM.

QUEEN ELEANOR'S CROSSES.

IV.

WE noticed in our last article the melancholy death of the youthful Queen of Scotland, and the disastrous consequences which were likely to accrue to that country, from the calamitous event. Edward I. knew that his immediate presence would be required in Scotland; and he accordingly set out on his way thither, unaccompanied, as heretofore, by his faithful Eleanora; but bidding her follow him with all convenient speed. This affectionate woman needed not the injunction of her lord, to hasten the preparations for her departure. Very soon was she on her way to join him, and to share, as she supposed, in the dangers of his Scottish expedition. But Providence had decreed otherwise. In travelling through Lincolnshire she was seized with a dangerous autumnal fever at Herdeby, near Grantham, which arrested her progress, and threatened speedy dissolution. Edward had not reached the Scottish borders when this fatal news was brought to him. The crown of Scotland, highly as it was prized by this ambitious monarch, was as nothing compared with Eleanora, the faithful and beloved companion of his life. Accordingly we find him turning his back on the land to which he had been so eagerly hastening, and retracing his steps with the utmost speed attained by travellers of that age. But, alas! he was too late to see her alive. This lovely and admirable queen had expired November 29th, at the house of a gentleman named Weston, in about the forty-seventh year of her age.

The grief of Edward was so acute as to banish for a time every other consideration. The affairs of Scotland were unthought of; and until he had followed the corpse of his beloved queen to her grave at Westminster, he would not attend to the slightest temporal concern. The mournful procession occupied thirteen days in the progress from Grantham to London. During this journey, the royal bier rested at intervals, surrounded by its attendants, in some central part of the town at which it had arrived, until the ecclesiastics of the neighbourhood had assembled in solemn procession to place it before the high altar of the principal church. There were about fifteen of these resting places, and at every one of these, Edward commanded a cross to be erected in memory of his *chère reine* (dear queen,) as he always called the faithful Eleanora. Fifteen splendid monuments of his affection were therefore raised on the spots which formed the stages of his journey, and of these there are three still in existence, *i. e.*, the Queen's Cross, near Northampton, the Cross at Geddington, Northamptonshire, and the Queen's Cross, at Waltham, in Hertfordshire. The description of these will enable the reader to judge of the beauty and elegance of the rest, which were, doubtless, of very similar character. According to Gough, the crosses were erected at Herdeby, Lincoln, Newark, Leicester, Geddington, Northampton, Stony Stratford, Dunstable, St. Albans, Waltham, Cheapside, and Charing by Westminster. The following extract from Stukely will show, however, that other names are to be added in the list of these stages.

Grantham and Stamford were stages. Mr. Howgrave says there was a Queen's Cross at Stamford; and the like is affirmed of Grantham, and that it stood in the open place in the London road; and I saw a stone carved with foliage work, and said to be part of it, and I believe it, seeming of that sort of work. If so, then Newark and Leicester must be left out, and they travelled with the queen's corpse by way of Oundle to Geddington from Stamford. I suppose the present London road from Stamford being unpassable, or not having at that time royal seats, manors, or abbeys, by the way sufficient to entertain the cavalcade. Mr. Peck, in his *Stamford Annals*, asserts Grantham and Stamford to be two of the stages, and where crosses were erected. No doubt that at Grantham stood in the open London road, before my neighbour Hacket's house, called Peterchurch Hill; and the people have some memory

of it. Camden, who, doubtless, had seen them, inserts Grantham and Stamford. Woburn has also been named as one of the stages.

As the royal mourner with the funeral procession approached London, the principal citizens, with their magistrates, clad in black hoods and cloaks, came several miles on the north road to join them. Thus accompanied, the hearse containing the royal corpse moved on towards Westminster Abbey, where, after previously resting at the spot now occupied by the statue of Charles I., it was finally deposited near the beautiful tomb of Henry III. The disconsolate king performed whatever was deemed essential by the Romish priesthood for the safety of the soul of his beloved consort; and nothing which either their suggestions or his own affection dictated, was deemed too costly an honour to be paid to her memory. The Abbey of Westminster was richly endowed with gifts for the celebration of dirges and masses; and wax tapers were kept burning day and night around her tomb, even to the period of the Reformation. The skill of the celebrated Pietro Cavallini was employed to raise that tomb, a monument worthy of the artist's fame. Hemingford mentions that the king every Wednesday for a whole year gave a penny a-piece to all the poor that came for it; and at the end of the year settled a certain revenue on the Abbey at Westminster to celebrate her anniversary, and distribute the like dole thereon.

On the tomb in Westminster Abbey is a beautiful figure of the queen, of copper gilt, on a tablet of the same. The left hand, laid lightly on the breast, holds the collar; while the right falls gracefully on the drapery, and perhaps held the sceptre. The head is adorned with a coronet of fleur-de-lis and trefoils, under which the hair falls in ringlets. The drapery consists of a close tunic and mantle, the latter spreading from the shoulders, meeting again about the knees and covering the feet. Under the head are two cushions, enamelled with lions and castles, and at the feet two lions, one of which has been almost covered by the building of Henry the Fifth's Chapel. Over the head is a canopy niche of the same metal, the corner part of which has been torn away, as appears by two holes remaining in the table. The tomb is of Sussex marble, charged with the arms of England, Castile and Leon quarterly, and Ponthieu, each twice repeated, hanging from oak leaves in demiquatrefoil arches, whose pediments and finials are lightly frosted and terminated with foliage. The same style of ornament appears to the shields on the tomb, as on Waltham Cross. On the edge of the copper table, on which the figure reposes, and which is enamelled with lions, and the arms of England and Castile in lozenges, is the inscription in capitals of the time. Over all is a wooden canopy, the ceiling of which is divided into fourteen compartments. The neck of the statue was originally adorned with precious stones. Pennant speaks of the remaining cusps, where a carcanet or necklace had been fixed, but it had been wrenched off and stolen. The inscription at the edge of the tomb is simply this:—"Here lies Alianor, wife to King Edward, formerly Queen of England, on whose soul God for pity have grace. Amen."

Before the Reformation some Latin verses hung on a tablet near the tomb, which were thus translated by some ancient rhymster:—

Queen Eleanor is here interred,
A royal virtuous dame,
Sister unto the Spanish king,
Of ancient blood and fame;
King Edward's wife,—first of that name,
And Prince of Wales by right;
Whose father, Henry, just the third,
Was sure an English wight.
He craved her wife unto his son,
The prince himself did go
On that embassage luckily,
Himself with many moe.
This knot of linked marriage
The king Alphonso liked,
And with his sister and this prince
The marriage up was striked.
The dowry rich and royal was,
For such a prince most meet;
For Ponthieu was the marriage gift,—
A dowry rich and great.
A woman, both in counsel wise,
Religious, fruitful, meek,
Who did increase her husband's friends
And larged his honour eke.
Learn to die.

THE CROSS AT WALTHAM.

Waltham Cross, previous to the late restoration by Mr. Clarke, was more dilapidated than either of the others; but being more enriched in its architecture, it furnished a reason for Mr. Britton's opinion that these crosses, as raised in the vicinity of London, were more tastefully executed than those remote from court.

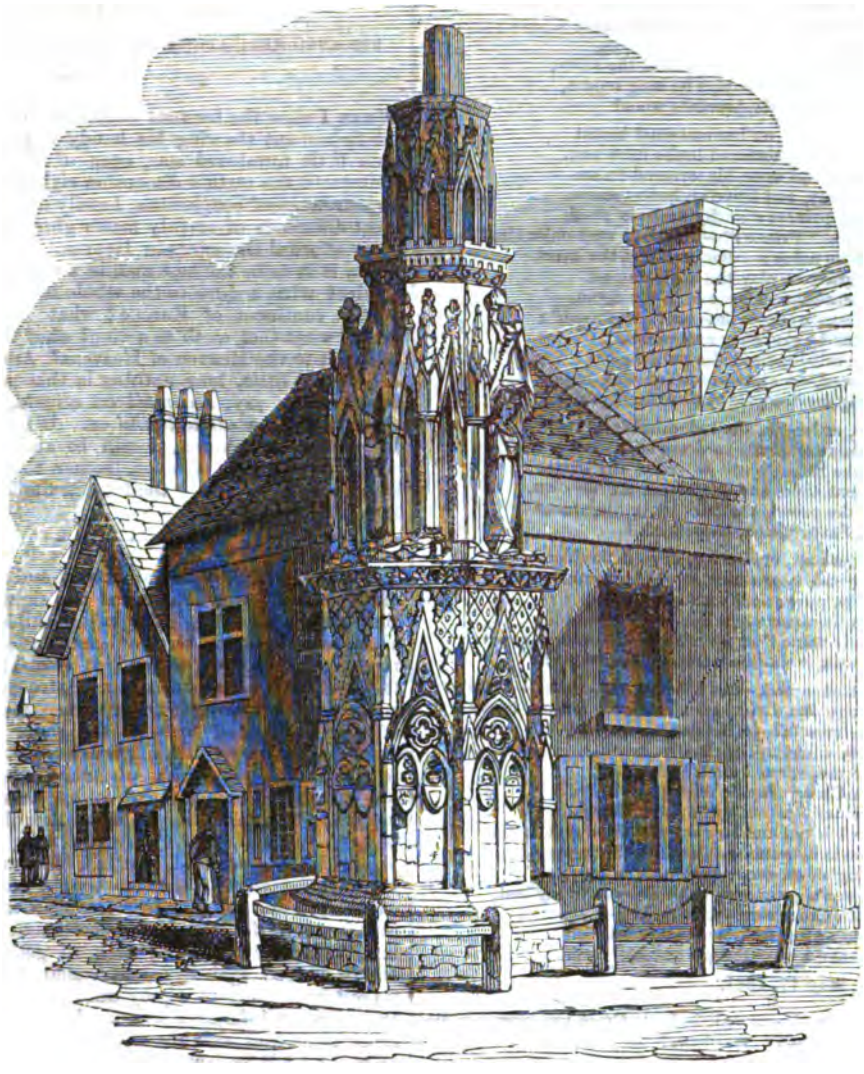
Waltham Cross is situate in the parish of Cheshunt, at the head of the road which leads from the high north road to the town of Waltham. This cross was doubtless as insulated at the time of its erection, as that near Northampton; but the resort of travellers having rendered houses of entertainment necessary, it has now been so built about as to endanger its safety. To the timely interposition of the Society of Antiquaries we are indebted for the preservation of this most interesting structure. In 1720 they caused posts to be erected to protect it from injury by carriages; for as it stands in what is now a narrow street in a great thoroughfare, and at the very turning of the road, it was peculiarly exposed to danger. We may therefore rather feel grateful to the learned body that any portion of the edifice remains, than wonder at the mutilated and shattered condition in which it recently stood.

In 1757 we find Dr. Stukely, Secretary to the Society of Antiquaries, acquainting Lord Monson, lord of the manor of Cheshunt, that the posts before mentioned had been removed by the commissioners of turnpikes, and praying his Lordship, in the name of the Society, to build brick-work round the stone-work at the base, and to set up posts. The Doctor lamented the encroachments of the adjoining houses upon the cross, and observed that a roof actually leaned against one of the beautiful statues of the queen. The brick-work and the posts were set up according to the request of the Society, and Lord Monson was presented with an engraving of the cross in token of their gratitude.

The description of Waltham Cross, given by the Society, is as follows:—

This cross is hexagonal, each side of the lower story divided into two compartments, charged with the arms of England, Castile and Leon, and Ponthieu, in shields pendant each from different foliage. Over these compartments is a quatrefoil, and over that, in the point of the whole, a trefoil. The pediment of each compartment is richly frosted with leaves. The spandrils of each pediment are carved with eight-leaved flowers in lozenges, and the panels are parted by purfled finials divided by two niches. The cornice over the first story is composed of various foliage and lion's heads surmounted by a battlement pierced with quatrefoils. The second story is formed of twelve open tabernacles in pairs, but so divided, that the dividing pillar intersects the middle of the statue behind it as in the other two crosses. These tabernacles terminate in ornamented pediments with a bouquet on the top, and the pillars that supported them are also purfled in two stories. This story also finishes with a cornice and battlement like the first, and supports a third story of solid masonry, ornamented with single compartments in relief, somewhat resembling those below, and supporting the broken shaft of a plain cross. The statues of the queen are in an attitude similar to the others, crowned, her left hand holding a cordon, and her right a sceptre or globe.

Notwithstanding these preventive measures of the



WALTHAM CROSS, PREVIOUS TO ITS RESTORATION.

Society of Antiquaries this beautiful structure was falling fast to decay, until the attention of the neighbouring gentry being called to the circumstance, a subscription was entered into for the purpose of repairing and restoring the monument. The design and direction of the work were entrusted to Mr. W. B. Clarke, assisted by a committee of subscribers. Our illustration represents the cross as it appeared some time previous to these repairs.

SANTA CROCE*.

BY EDWARD EVERETT, AMERICAN MINISTER AT THE COURT OF LONDON.

Not chiefly for thy storied towers and halls,
For the bright wonders of thy pictured walls;
Not for the olive's wealth, the vineyard's pride,
That crown thy hills, and teem on Arno's side,
Dost thou delight me, Florence! I can meet
Elsewhere with halls as rich and vales as sweet;
I prize thy charms of nature and of art,
But yield them not the homage of my heart.

Rather to Santa Croce I repair,
To breathe her peaceful monumental air:
The age, the deeds, the honours to explore
Of those who sleep beneath her marble floor;—
The stern old tribunes of the early time,
The merchant lords of Freedom's stormy prime;—
And each great name, in every after age,
The praised, the wise, the artist, bard, and sage.

I feel their awful presence; lo, thy bust,
Thy urn, Oh, Dante, not alas thy dust,
Florence, that drove the living from her gate,
Waits for that dust, in vain, and long shall wait.
Ravenna! keep the glorious Exile's trust,
And teach remorseless factions to be just,
While the poor Cenotaph, which bears his name,
Proclaims at once his praise,—his country's shame.

Next in an urn, not void, though cold as thine,
Moulders a giant spirit's mortal shrine.
Oh, Michael Angelo* looks down, so still and hard;
Speak to me, Painter, Builder, Sculptor, Bard!
And shall those cunning fingers, stiff and cold,
Crumble to meaner earth than they did mould?
Art thou, who form and force to clay couldst give,
And teach the quarried adamant to live,
Bid,—in the vaultings of thy mighty dome,
Pontifical, outvie imperial Rome.
Portray unshrinking, to the dazzled eye,
Creation, Judgment, Time, Eternity,
Art thou so low, and in this narrow cell
Doth that Titanic genius stoop to dwell;
And, while thine arches brave the upper sky,
Art thou content in these dark caves to lie?
And thou, illustrious sage! thine eye is closed,
To which their secret paths new stars exposed.
Haply thy spirit in some higher sphere
Soars with the motions which it measured here.
Soft be thy slumbers, Seer, for thanks to thee
The earth now turns without a heresy†.

* See *Saturday Magazine*, Vol. XIII., pp. 138, 177

* Michael Angelo, when he contemplated the statue of St. Mark, by Donatello, at Orsanmichele, used to say, *Marco, perche, non mi parli?* See *Saturday Magazine*, Vol. XIII., pp. 138, 177.

† Galileo, toward the close of his life, was imprisoned at Arcetri, near Florence, by order of the Inquisition. See *Saturday Magazine*, Vol. XXI., pp. 9, 38.

Dost thou, whose keen perception pierced the cause
Which gives the pendulum its mystic laws,
Now trace each orb with telescopic eyes,
And solve the eternal clock-work of the skies;
While thy worn frame enjoys its long repose,
And Santa Croce heals Arcetri's woes?

Nor them alone: on her maternal breast
Here Machiavelli's tortured limbs have rest.
Oh, that the cloud upon his tortured frame
Might pass away, and leave an honest name.
The power of princes o'er thy limbs is staid,
But thine own "Prince;"—that dark spot ne'er shall fade.
Peace to thine ashes;—who can have the heart
Above thy grave to play the censor's part.
I read the statesman's fortune in thy doom,—
Toil, greatness, woe;—a late and lying tomb*:
Aspiring aims by groveling arts pursued,
Faction and self-baptized the public good,
A life traduced,—a statue crowned with bays,
And starving service paid with funeral praise.

Here too, at length, the indomitable will
And fiery pulse of Asti's bard are still.
And she—the Stuart's widow—rears thy stone,
Seeks the next aisle, and drops beneath her own.
The great, the proud, the fair—alike they fall;
Thy sickle, Santa Croce, reapeth all!

Yes, reapeth all, or else had spared the bloom
Of that fair bud, now closed in yonder tomb.
Meek, gentle, pure; and yet to him allied,
Who smote the astonished nations in his pride:
"Worthy his name," so saith the sculptured line,—
Waster of man, would he were worthy thine†!

Hosts yet unnamed,—the obscure, the known,—I have;
What throngs would rise, could each his marble heave!
But we who muse above the famous dead,
Shall soon be silent as the dust we tread.
But not for me, when I shall fall asleep,
Shall Santa Croce's lamps their vigils keep.
Beyond the main in Auburn's quiet shade,
With those I loved and love my couch be made;
Spring's pendant branches o'er the hillock wave,
And morning's dew drops glisten on my grave;
While Heaven's great arch shall rise above my bed,
When Santa Croce's crumbles on her dead;
Unknown to erring or to suffering fame
So may I leave a pure though humble name.

Florence, May 17, 1841.

* The monument o Machiavelli in Santa Croce was erected in the latter half of the last century:—the inscription, *Tanto homini nullum par elogium.*

† *Ici repose Charlotte Napoleon Bonaparte, digne de son nom*, 1839 The words are translated "worthy *his* name," for an obvious reason.

RUSSIAN FORESTS.

INTO this we daily penetrate on our sledges, drawn by three horses abreast, at full speed, surging through the snow like a boat breaking through the waves, and casting up a sparkling spray, as though we moved through an atmosphere of diamonds. The opening of the forest is like the charnel-house of nature; every tree rattles like a bleached skeleton—moaning, hollow, gaunt, and menacing—till we lose the apparition by bursting our way amidst towering firs, whose shafts swell into columns of snow, and flit in thousands of marble pillars before our watery eyes, which give, perhaps, an illusive medium to reality. The underwood, feathered like swan's down on the wiry branches, trembles under the weight of snow tufts, like bunches of the Gueldres rose; so that, in this instance, winter outvies the garland of the brightest summer. Nor is the gilding of the setting sun less magic in its effect, when an horizontal beam, striking upon the snow, seems to awaken all the treasures of Golconda, and the ground blazes in sapphires, emeralds, amethysts, opals, and brilliants. The solitude of the forest is seldom interrupted in our course, except by wood-cutters, looking like satyrs rather than human beings, whose endless beards clogged in snow and lengthened by icicles, crackle in responsive measure to their hatchet strokes. The appearance, however, of the ladies of the castle suspends all labour; and till the traineau is out of sight, a circle of those shaggy satyrs, clothed in the skins of beasts, with fur night-caps in their *paws*, assemble to show their devotion and reverence by bowing repeatedly their *bear* heads to the ground.—*Memoirs of the Princess Daschkaw.*

SPARE MINUTES.

RESOLVED MEDITATIONS AND PREMEDITATED RESOLUTIONS.

WHEN I view the heavens declaring the glory of God, and the firmament shewing his handy work, and consider that each little numbered star, even of the sixth magnitude, containeth the earth's dimension eighteen times in bigness by astronomers' conclusions, I easily descend to consider the great difference of earthly men's glory, and that weight of glory afforded the saints in Heaven. For what a poor ambition is it to be the best man in a city! What's a city to a shire? what a shire to the whole island? what this island to the continent of Europe? what Europe to the whole earth? what that earth to a star? what that star to heaven? and that to the Heaven of Heavens? And so by a retrogradation how little, how nothing is this poor glory! I find many which say, *hoc nihil est aliquid*, I find in myself cause to say, *hoc aliquid nihil est.* If I needs will be somebody by my ambition, I will be ambitious to be ranged with the saints in Heaven, rather than ranked with the kings on earth: since "the least in the kingdom of Heaven is greater than they."

I SAW once a falcon let fly at a heron, and observed with what clamour the heron entertained the sight and approach of the hawk, and with what winding shifts he strove to get above her, labouring even by bemuting his enemy's feathers to make her flag-winged, and so escape: but when at last they must needs come to a necessitated encounter, resuming courage out of necessity, he turned face against her, and striking the hawk through the gorge with his bill, fell down dead together with his dead enemy. This fight seemed to me the event of a great suit in law, where one trusting to his cause's potency, more than his cause's equity, endeavours to disinherit his stubborn neighbour by colourable titles to his land. Here may you hear the clamorous obloquies of the wronged, and see the many turnings and winding meanders in the law sought out to get above his adversary: and lastly, when the issue must come to trial, oftentimes in the grapple they both sink to beggary by the law, whilst lawfully they seek to get above each other. Hence warned against potent enemies I will always pray, "Lord, make me not a prey unto their teeth;" and against an equal or inferior I will not borrow the law's extreme right to do him extreme wrong; nor fall to law with anybody till I fall by law to be nobody. I will not do that to have my will, which will undo myself of what I have by my wilfulness.

THE Psalmist doth not slander the slanderers, when in a good description of their bad natures, he saith, "Their throat is an open sepulchre, the poison of asps is under their lips." For what more loathsome stench and noisome smells can a new-opened sepulchre belch out, than these venomous, open-throated slanderers? and well may their lips contain the poison of asps, of which Lucan saith, *in nulla plus est serpente veneni*, when a few words of theirs shall (like a witch's spell) charm and strike dead a man's dearest reputation. I will therefore endeavour to make my actions of that virtue, that, as an antidote of Mithridates his best confection, they may repel the worst infection those serpents shall spit at me. And albeit I cannot be free from their assaults (from which none is freed) yet I will not, with Cleopatra, set those asps so near my heart that they may stop my vital spirits with their poison. And since I must pass through this Africa of monsters and harmful beasts, I will carefully fear and shun the worst of tame beasts, the flatterer, and wild beasts, the slanderer.

MEDITATION is a busy search in the storehouse of phantasy for some ideas of matters, to be cast in the moulds of resolution into some forms of words or actions; in which search, when I have used my greatest diligence, I find this is the conclusion, that to meditate on the best is the best of meditations: and a resolution to make a good end, is a good end of my resolutions.

[ARTHUR WARWICK, 1637.]

COLD IN PARIS.

In summer in Paris is bad for man and beast, winter is even less bearable; at least the cold, which set in one winter I was there, was such as I never remember to have seen in England, Scotland, or anywhere else. It was not a good, honest, bracing moderate degree of cold, which you could temper out of doors by smart exercise, or subdue within by means of blazing fires. It seemed to defy every such device; being hard and dry, and so biting, merciless, and snarly, that there was no possibility of escaping its searching intensity. It subdued all mankind alike—natives and strangers, and at times entirely cleared the streets of people; leaving the capital like one of those mysteriously deserted cities in Hindostan described by travellers in the East, which, with all their palaces and temples complete, have been left for ages without a single inhabitant in them!

I walked once, the day after Christmas, from end to end of Paris, and literally met only a stray gendarme or two.

How the wretched coachmen manage to live at all in such weather as I have seen in Paris, is to me inconceivable; for even to the inside passengers the cold becomes at times so severe that with all the contrivances they can think of—warm furs, hot-water bottles, great-coats, boat-cloaks, and shawls,—they can scarcely go from one house to another without being frozen to death; a fate which actually befel two poor sentries, and an unfortunate donkey, one bitter night of the winter alluded to. The soldiers were found at the hour of their relief, as it is called, with their muskets shouldered, standing as stiff and erect at their post as the palace-gate, as when their corporal had planted them. The honest donkey was found standing across the path in the Boulevards at daybreak, with his tail straight on end, as rigid as a bar! In his death the poor old fellow retained his wonted look of patience and contentment so completely, that the people, thinking him still alive, drubbed him soundly as they passed for being in the way.

To return to the no less passive coachmen. One can understand how an English jarvey manages by reiterated pots of porter, and perhaps a glass or two of gin, to keep the cold out of his stomach; but how the French drivers contrive, without malt liquor or strong waters, to sit on their boxes at night for two, three, four, or five hours on a stretch, apparently as insensible to the biting frost as if they were made of granite and not of flesh and of blood, is utterly inconceivable. Still less is it comprehensible how their horses can stand for so many hours together, with iron shoes, on the cold ice and stones of those sadly-mismanaged streets. —Captain Hall's *Patchwork*.

EASY LESSONS IN CHESS.

XIII.

The King's Gambit.

We are now about to introduce the young student to a favourite and brilliant style of play, altogether different from the specimens given in the previous lessons. The King's Gambit offers greater variety than is to be found in the other openings, and therefore requires greater knowledge and practice to conduct it with success: hence, an experienced player when he gives the odds of the Queen's Rook or Queen's Knight to an inferior antagonist, often prefers this mode of play.

The word *Gambit* is derived from an Italian phrase used in wrestling, and signifies a peculiar movement by which the adversary is tripped up. In Chess the "peculiar movement" is, for the first player, early in the game, to sacrifice a pawn for the sake of gaining an attack. There are many ways in which this pawn may be sacrificed, and consequently there are many varieties of Gambit; but the King's Gambit includes the greatest part of them. In this gambit the first player moves K. P. two squares, and on the second move K. B. P. two squares, which is sacrificed. There is also the Queen's Gambit, which derives its name from the Q. P. being first moved two squares, and the Q. B. P. being sacrificed on the second move.

The varieties of the King's Gambit are often known by the names of the players who invented, or first introduced them:—thus we have the *Muzio* Gambit, the *Salvio* Gambit, the *Allgaier* Gambit, the *Cochrane* Gambit, the *Evans'* Gambit, &c. Other varieties obtain their names from one of the early moves of the first player: thus we have the *Bishop's* Gambit so called because the first player moves out his King's Bishop before his King's Knight.

The term *Gambit Pawn* is applied sometimes to the pawn you sacrifice on the second move, but more commonly to the pawn of your adversary which captures your pawn: thus in the King's Gambit the opening moves are

WHITE.	BLACK.
1. K. P. two squares.	1. K. P. two squares.
2. K. B. P. two squares.	2. K. P. takes K. B. P.

In this case his K. P. is transferred to his K. B. file, and becomes the Gambit Pawn.

In the Queen's Gambit the opening moves are

1. Q. P. two squares.	1. Q. P. two squares.
2. Q. B. P. two squares.	2. Q. P. takes Q. B. P.

In which case his Q. P. is transferred to his Q. B. file, and becomes the Gambit Pawn.

Authorities are divided in opinion as to the safety of this method of opening the game. Some contend that the loss of a pawn on the second move ought to entail upon the first player the loss of the game; others say that the attack acquired by the sacrifice of the pawn compensates for its loss; besides, the second player in gaining the pawn must double a valuable pawn, and thus resign the centre of the board to his adversary: disadvantages which take something from the value of the pawn thus gained.

Perhaps the most general opinion is, that the gambit when properly defended is unsound. In such a case the first player may hope to draw the game. Indeed, in all the common openings at chess, if the moves of both parties be strictly correct, the result ought to be a drawn game. This, however, is a height of perfection which will probably never be attained, and therefore the sacrifice of a pawn may be hazarded on account of the many favourable sources of attack thereby opened to the first player; while the position of the second player is frequently one of considerable restraint and embarrassment.

The following remarks on the King's Gambit by Ponziani will be read with interest by the amateur, and also by the young student, when he has fairly entered upon the brilliant and ingenious strokes of gambit play:—

The quality of this opening demonstrates that the inventor, whoever he might be, considered principally that the removal of the adverse King's Pawn from the fourth square, caused a good order of the game, because there he is of greatest importance; and especially prevents the King's and Queen's Pawns being posted equally at the fourth squares. To attack the said adverse King's Pawn, he found the King's Bishop's Pawn most convenient; since this often serves only to prevent or retard the attacks which might be made with the King's Rook placed in the Bishop's square; and therefore he judged it good play, at the second move, to push the said Bishop's Pawn to its extent, putting it *en prise* of the adverse King's Pawn, with the confidence either of recovering it, or of becoming compensated in another shape with a superior situation. As, then, the adversary, after having taken the said Bishop's pawn, threatens a pernicious check with the Queen at the first player's King's Rook's fourth; thus, he who plays the gambit ought, for his best, at the third move, to play out the King's Knight to the Bishop's third; whence succeeds a most animated conflict, full of dangers and vicissitudes, which, at every move, change the aspect of the battle, and promote a thousand artful stratagems on the one part, to preserve the pawn in advantage; and, on the other, to recover it with a better position.

Although Philidor declares the King's Gambit to be an indifferent game, which by its nature produces neither profit nor injury, yet Stamma and Salvio, with the best academicians of Italy, and recently the most accurate Anonymous

Modenese*, think differently: holding it a pernicious game for him who attempts it; since he necessarily remains a Pawn inferior, without compensation. It notwithstanding produces many moves of supreme skill and subtlety, which demand still greater study and circumspection than in the Piano Games.

It may probably occur to the reader, that if the second player refuse, at the second move, to take the proffered pawn, the game does not become a gambit. Such is the case: for although it is to the advantage of the second player to accept the gambit, yet he may if he please evade it. The best methods of doing so will be shown hereafter. At present we propose to occupy the remainder of our space with two short, but brilliant games, as specimens of the gambit evaded, and the gambit accepted.

1. THE GAMBIT EVADED.

WHITE.	BLACK.
1. K. P. two squares.	1. The same.
2. K. B. P. two squares.	2. Q. P. two squares.

This move is frequently played by those who desire to evade the gambit. It may be good when odds are given to the second player, but in even games it is much better to take the pawn.

3. K. P. takes Q. P.

It is much better to take this pawn than to defend your K. P. by playing Q. P. one square, which would only obstruct your game.

	3. Q. takes P.
4. Q. Kt. to Q. B. third square.	4. Q. to K. third square.

He would have played quite as well in taking Q. home: he would have lost a move it is true, since you played out your Q. Kt. in order to drive away his Q. We have already stated how dangerous it is to play out the Q. so early in the game; she may be attacked by several minor pieces, and in escaping therefrom many moves are lost which to the opposite party are as many moves gained.

5. K. Kt. to K. B. third square.	5. P. takes P. checkg. by discovery.
6. K. to K. B. second square.	

This move is well played. It is often much better to move the K. when attacked, than interpose a piece. It is true that by moving the K. you are prevented from castling; but, whenever his K. and Q. are on the same file, you should endeavour to get a R. into play, so as to attack both, and win the Q. Minor advantages may frequently be sacrificed for one great gain: the chief point to be regarded is, to play so as to command as large a portion of the field as possible: you thus acquire the most valuable facilities either for attack or defence.

	6. K. B. to Q. B. fourth sq. checkg.
7. Q. P. two squares.	

Young players can seldom resist the temptation to check wherever an opportunity occurs: it is a very bad habit, and should be avoided. The present is an example of a useless check, for by the advance of your Q. P. the B. is driven away, and your own game improved. He ought to have played the B. to K. second square, or Q. B. P. one square.

	7. K. B. to Q. third square.
8. K. B. to Q. Kt. fifth sq. checkg.	8. K. to K. B. square.

If he had interposed Q. B. P. you would have played the K. R. to K. square, winning his Q.

9. K. R. to K. square.	9. Q. to K. B. fourth square.

This attempt to save the Q. involves an immediate checkmate.

10. K. R. to K. eighth square, checkmate.

* Ercole del Rio published at *Modena*, in the year 1750, his practical observations on the game of chess. As the work did not bear the author's name, it was referred to, by chess students, as the production of the Anonymous Modenese, a title by which that writer is now more frequently known than by his real name. Ponziani is also sometimes referred to as the Second Anonymous Modenese, from the circumstance that the first edition of his celebrated *Analysis of Chess* was published anonymously at Modena (1769).

THE GAMBIT ACCEPTED.

WHITE.	BLACK.
1. K. P. two squares.	1. The same.
2. K. B. P. two squares.	2. P. takes P.

Black now plays best. The success of his defence will greatly depend on his being able to preserve the Gambit Pawn.

3. K. Kt. to K. B. third square.

The object of this move is to prevent him checking with his Q. at his K. R. fifth square.

	3. K. Kt. P. two squares.

This is the best method of defending the Gambit Pawn.

4. K. B. to Q. B. fourth square.	4. K. B. P. one square.

Black loses the game by this move. It may be taken as a general rule in all gambits, that it is bad play to move the K. B. P. one square.

5. K. Kt. takes K. Kt. P.	5. K. B. P. takes Kt.

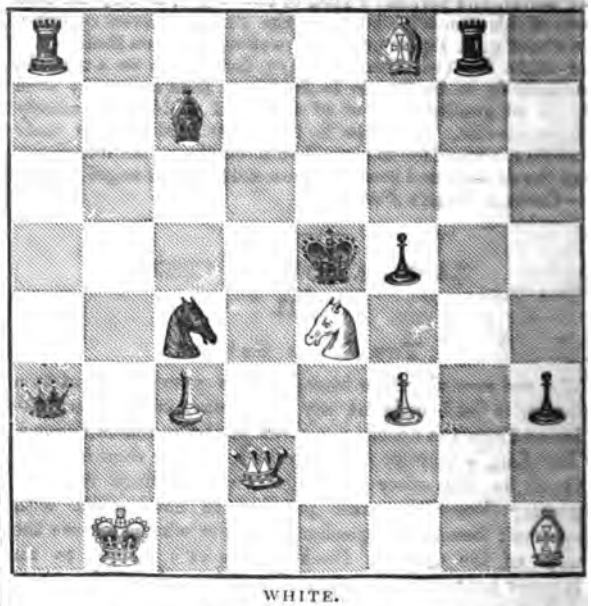
The young player is apt to regard this as the positive gain of a piece, which he finds it hard to refuse to take. In the present case, however, his game is gone whether he take the Kt. or not. His great error was in moving his K. B. P.

6. Q. to K. R. fifth square checkg.	6. K. to K. second square.
7. Q. takes K. B. P. checking.	7. K. home.
8. Q. to K. R. fifth square checkg.	8. K. to K. second square.
9. Q. to K. fifth square checkmate.	

At the seventh move, you might have played Q. to K. B. seventh square checking; then to Q. fifth square checking; and lastly have given checkmate at K. fifth square.

PROBLEM XII. *White moving first is to give checkmate on the third move.*

BLACK.



WHITE.

I MEET sometimes with men whose crazed brains seem soldered with quicksilver: whose actions' strains run only in odd crotchets; whose judgments being hood-winked with their own opinion and passion, admit of nought for reason, but what their unreasonable self-will dictates to them. And then what they will do, they will do; and do it they will with that torrent of violence, that overturns all obstacles of counsel which cross their courses. From these I will learn not to make *Will* my coachman, unless *Reason* run before to show the way: and if my action must pass by the waters of uncertain danger, of all vessels I will not use the *Wherry*. As sloth seldom bringeth actions to good birth; so hasty rashness always makes them abortive, ere well formed.—ARTHUR WARWICK.

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THE FIVE PORTS OF CHINA OPEN TO THE BRITISH TRADE.

EUROPEAN FACTORIES AT CANTON.

V. Canton.

For the sake of rendering a complete account of our trading ports in China, we include Canton in the list; although this is not a newly opened port, but, on the contrary, has been, from a distant period, the only really available channel of commerce for foreign nations. Three Supplements, in Vols. X., XI., and XII., of the *Saturday Magazine*, have already been devoted to a description of Canton, its situation, trade, inhabitants, &c., and we have only now to add such remarks as more recent information, and the change in the position of this port with respect to English trade, seem to demand.

In returning from Shang-hai, described in our last article, to the port of Canton, we retrace on the map the course already pursued, passing the Chusan group of islands, the port of *Ning-po*, that of *Foo-choo*, and that of *Amoy*. In approaching Canton the island of Hong-Kong claims attention among the numerous islands which are scattered about the entrance of the bay. This island being now ceded to Britain deserves particular notice. We shall therefore describe it in a separate article.

The towns on the banks of the river as we approach Canton have a picturesque appearance, some of them being thickly interspersed with trees. The pagodas are numerous, crowning the summit of the hills, shooting up from the green rice-fields, or overtopping the woods. The general character of this level and fertile country is occasionally varied by the occurrence of masses of granite, forming hills of considerable height. The river is crowded with boats, and the water branches off in all directions into canals, streams and creeks. Over the rice-grounds that lie above Whampoa, the city of Canton appears with its long line of European factories.

With respect to this hitherto important city, it has been truly remarked in a leading journal of the day, that unless fresh misunderstandings occur between the British and the Chinese, the opening of four new ports to the enterprise of our merchants will soon and materially alter the condition and direction of the eastern tea-districts, and of all the countries which trade with them. To Canton the new arrangement is likely to prove a heavy blow. Its chief articles of export are tea and bullion: the former will henceforth be shipped in preference at the ports in the tea-provinces; and the exportation of silver, if tolerated, can be effected as easily at Shang-hai as at Canton. Commerce will now be more extensively diffused; and with it we may hope that a numerous train of attendant benefits will visit this hitherto sealed empire.

The number of itinerant workmen and pedlars in Macao attracted Mr. Bingham's attention. He describes the perambulating blacksmith with his portable forge, the bellows and anvil being slung at one end of a pole, while at the other is a basket containing coals, old iron, pan for the fire, &c. The ambulatory barber also is constantly on the move, with a small chest of drawers containing his razor, brush, soap, and a set of instruments for cleaning the ears. When occupied in his vocation, should he not be furnished with his own apparatus for heating water, he will get permission to

boil it at the nearest forge or cook's shop, probably shaving the owner's crown for the boil. The Chinese razor is a most unsightly thing. It consists of a small piece of triangular iron, with a very thick back, opening and shutting into a round wooden handle, yet with this they will make a very clean shave. These itinerant dealers include cooks with their kitchens, pastry-men with their boxes of sweetmeats, glass-menders with tools and rivets, and almost every other trade.

A medical practitioner sat on his mat in the open square with his simples scattered around him. He dealt out medicines and charms of every description. Boluses, powder, and pitch-plaisters seemed to be in great demand. The pills were as big as a boy's marble.

Some of these empirics, (says Mr. B.,) have a peculiar method of cupping: they use two wooden cylinders, which, after having some lighted paper burnt in them, are applied to the intended spot; and upon their removal two bumps are seen, which are then punctured with needles and the mouth applied to draw the blood.

The hinder quarters of frogs are exhibited in the markets at Macao. The Chinese call the frogs *Field Hens*, and regularly fish for them. The angler is furnished with a rod and line, and uses a young frog for a bait, which being bobbed about in the paddy-fields, is quickly seized upon by his larger brethren.

In Macao beggars are numerous, and they possess the curious privilege of entering any shop and making a continued noise with a powerful rattle, until silence is purchased by the shopman or his customers.

In concluding these notices of the five ports of China now open to British trade, we may be allowed to express an earnest hope that the Chinese people may soon experience, not only the beneficial results of an extended trade, and the advantages which usually result from constant intercourse with a highly civilized nation, but also the blessings of the holy religion which we profess. That the Chinese are deeply in need of these blessings will appear the more strikingly if we refer to Professor Kidd's interesting work on China, where we have a full account of the religion, or rather the superstitions of the Chinese. The three principal sects in China are the sect of *Reason*, the sect of *Fuh*, and the sect of the *Learned*. The first of these was founded by *Laou-Keuntsze*, five hundred years before the Christian era, who was contemporary with Confucius. The founder of this sect is described as

the great, supreme, three-fold source, consisting of three personages, of whom the most honourable dwells in heaven, bestowing happiness; the next in rank grants forgiveness of sins on earth; while the inferior rules the waters, and delivers from impending calamities: yet these three sages are but one first cause.

This triune power presides over divinities, and rulers, the sun, moon, stars, and constellations, and sends a celestial messenger to announce the pardon of sin, infinite happiness, and complete deliverance from evil, to all who shall recite his precious name, with many magnificent epithets superadded. He is said to have become incarnate under some form or other, in seven different periods. The sect of Reason has other deities, such as the "supreme ruler," the "northern emperor," the "god of fire," &c., but the principal divinities are the three pure ones, united in one abstract essence, of which eternal reason is the basis and characteristic.

The sect of Fuh recognises "three precious ones," but they are, the *past*, the *present*, and the *future*, without attributes or perfections. This superstition was introduced from India, in the first century of the Christian era. It has numerous minor divinities, principally goddesses, presiding over individual and local events; numerous absurdities are connected with this system, and as it is extremely popular, it is considered more mischievous than the former.

In the system of Confucius, which constitutes the sect of the *Learned*, the first cause is variously designated as reason, heaven, supreme ruler, supreme heaven, and heaven and earth. The term *Tuou* is applied to express an eternal, unchangeable, omnipresent being, so vast that it fills the universe, so minute that it is contained in all things. This Taou is said to be the source of the changes which occur in nature. It is a divinity from whence issued heaven, earth, man, and all natural objects. The term also signifies a path, or mode of access, as well as a *word*, or medium of communication, and Professor Kidd directs attention to the remarkable coincidence of properties in this divinity, with those appropriated by the Saviour, or ascribed to Him by his inspired servants: "I am the *way*, the *truth*, and the *life*;" "In the beginning was the *Word*."

Heaven and earth are the most common deities invoked by the government and people. On state occasions the emperor offers bullocks in sacrifice. They are offered to heaven at the winter solstice, and to earth at the summer solstice; also to local deities, to the deity of the sea; the god of literature; the manes of the dead; the queen of heaven, (a young woman said to have been translated to heaven), the inventors of law, medicine, and other useful arts and professions.

The Chinese are much excited by hopes or fears on the occurrence of eclipses, comets, meteors, earthquakes, inundations, &c. They attribute an eclipse to the circumstance of a dog eating part of the sun or moon, and accordingly they make loud noises with gongs and other instruments to frighten the animal away. The term for eclipse is—"eaten sun or moon."

Among the translations from native records those relating to the Flood are very remarkable. This event is placed by the Chinese system of chronology in the year of the world seventeen hundred and thirteen, only fifty-seven years later than the generally received date. The following dialogue is represented as taking place between *Yu*, the Chinese Noah, and the emperor *Yaou*. The emperor says,—

Approach the imperial throne, you have abundant communication to make. Yu worshipped and said, May it please your majesty how can I speak? My thoughts were unweariedly and incessantly employed day by day. The deluge rose high, and spread wide as the spacious vault of heaven; buried the hills, and covered the mountains with its waters into which the common people, astonished to stupefaction, sank. I travelled on dry land in a chariot, on water in a boat, in miry places on a sledge, and climbed the sides of hills by means of spikes in my shoes. I went from mountain to mountain felling trees; fed the people with raw food; formed a passage for the waters to the sea on every part of the empire, by cutting nine distinct beds and preparing channels to conduct them to the rivers. The waters having subsided, I taught the people to plough and sow, who, while the devastating effects of the flood continued, were constrained to eat uncooked food. I urged them to barter such things as they could spare for others of which they stood in need. In this way the people were fed, and ten thousand provinces restored to order and prosperity.

The tradition does not allude to the sources of the calamity, nor to the resting-place of the people during its continuance. In the time of Yu wine was first made by E-Teih; but when Yu drank of it and relished its flavour, he banished its maker, and prohibited the luxury, remarking that in future ages nations would be ruined by it.

We cannot fail to trace in these particulars, as well as in the main features of the three principal sects, a feeble ray of light diffused from the only true source, and penetrating through the mists of heathenism, yet so faint is its beam, that it seems to make the surrounding gloom the more apparent. The obscure notion of a triune power ruling over all, is not sufficient to restrain this people from gross idolatry. Thus we find that the Chinese revere various monsters, the deities of certain hills and mountains, which are said to control the

destinies of the human race. One is represented with the body of a tiger, having nine human heads; this is called the intelligent creature of a hundred souls: another is a crocodile with six heads and four feet: another a kind of deer with the body of a horse spotted like a tiger, having a white head and red tail, which, they say, makes a noise like a person singing. Other animals are represented headless, or with many heads of different kinds. The four supernatural animals that preside over the destiny of the empire are the stag, the phœnix, the tortoise, and the dragon; the last forming the national arms of China, depicted on imperial standards, and affixed to edicts, &c. Let us hope that all these absurdities will gradually be relinquished by the Chinese, in proportion as their intercourse with Christian nations becomes established and extended, and their knowledge of the sacred Scriptures promoted by Christian effort. There appears to be nothing in the character of the people themselves, to hinder the introduction and free diffusion of scriptural truth among them; for, considered apart from their rulers, they are a simple-minded, intelligent, and active people; anxious to communicate with foreigners, to join in the same march of improvement. Their stationary position, which is the result of their religion and the vain and complacent temper of their government, as well as of the isolated nature of the country, is thus eloquently sketched by a most competent and skilful authority on all subjects relating to the Chinese, and an ardent friend to the cause of spiritual and temporal improvement among them—the Rev. Mr. Gutzlaff:—

Separated from the continent of America by the great ocean, bounded by dreary deserts and towering mountains, the insular position of China was traced by the hand of the God of Nature. Conquerors eager to sway the sceptre of the world, approached the frontiers of China as forbidden ground, and recoiled at the insurmountable obstacles which precluded their farther progress in the career of victory. Thus isolated from the world, and fortified against foreign invasions, China raised its head and preserved its existence, whilst all the empires around it, how powerful soever, decayed and became a prey to the mighty spoiler. The Assyrian, Babylonian, Persian, and Grecian monarchies, have successively occupied Western Asia; new empires have risen upon the ruins of fallen greatness; the countries have changed their aspect; new nations and languages have sprung up;—but China has undergone, in the mean time, few changes. The invincible Romans have long fled before the conqueror; Europe has repeatedly been overwhelmed by swarms of barbarians; it has been divided and subdivided, and wholly remodelled according to the choice of the new occupants; yet China has kept up its ancient customs, and retained the race which from time immemorial inhabited it. When, finally, hungry barbarians encroached upon its territory, and afterwards conquered it, the victors were lost amongst the myriads of its original inhabitants, and after a few generations, amalgamated with the conquered. Whilst civilization has advanced with rapid strides, taking an extensive tour over the globe, it was not able to overstep the barrier which an anti-national Chinese policy created around the Celestial Empire. Still it is absolutely separated from the whole world, and views with indescribable contempt every other country. To draw a line of demarkation, it assumes the title of Celestial, and styles itself the Middle Kingdom; all other nations are barbarians, doomed to live at the extremity of the square-cornered earth, or upon some small islands in the four seas which surround the Middle Kingdom. Conscious of its majesty, which is enhanced by a venerable age, it assumes the universal empire of the world, keeps the barbarians in subjection, sways the four seas, and always rules by compassion. With equal tenderness it embraces all countries, but at the same time leaves distant barbarians to their lot, if they are so stupid as not to acknowledge the supremacy of the only civilized nation in the world. Considering even the presence of barbarians contaminating and destructive to its ancient institutions, it keeps them at a respectful distance, and stigmatizes with the ignominious appellation of traitorous natives, those of its degenerate sons who dare to mix with so vile a race.

SNOW THIRST.

Before the perusal of a book of travels, the intelligent reader has a general idea of the scenes which his author describes, and can almost foretell the nature of the toils, the risks and the dangers which the traveller has encountered. It is by anticipations of this kind that we are disposed to draw our chair a little nearer to the fire the moment we prepare to peruse such interesting books as Parry's *Polar Voyages*, or Franklin's *Travels to the Shores of the Arctic Sea;* and it is thus too, owing to previously formed associations, that the very mention of Africa sets our imagination to work among unwholesome marshes and scorching sands, venomous reptiles and vindictive savages.

But in reading or thinking of snow-covered countries, we are scarcely aware of a singular and almost incredible fact, and scarcely recorded by travellers, namely, that during winter, on the cold and snow-covered plains of North America, man is exposed to the most painful of the many privations connected with African discovery: that even while walking on frozen water, he is agonized by parched and burning lips: and that by snow, eaten under such circumstances, the thirst of the traveller or hunter is proportionally increased.

Attention was called a few years ago to this singular fact by Mr. Sloane, who, in a communication to Professor Jameson, describes a few of the results of his own experience. From this source we gather the following particulars. In the higher latitudes of North America, all the snow falls at the commencement of winter. Clear skies, and an intensely cold atmosphere, characterize the climate, until warmer airs, and fogs, and flights of birds, intimate the approach of spring. During winter the sun has sufficient power to melt a small portion of the surface of the newly fallen snow, which is frozen by the next night's cold, thus forming a glassy surface on which the sledge glides rapidly, and the hunter on his broad snow-shoes, travels with an ease very different from that which he experiences on entering the woods, where the snow is always soft.

At such a season the fur-bearing animals are in best condition, and the fur-hunters full of activity. During their long excursions they often suffer great agony from thirst. It is not certainly so bad as that endured by travellers in the torrid zone, because a speedy and certain remedy is generally at hand; but it is truly painful while it lasts, and the sufferer is surprised to find that by eating snow his mouth is more and more inflamed, and his desire for drink fearfully increased, while a faintness and weariness come over him, which water and water only can dissipate.

More than once (says Mr. Sloane) when traversing wide plains, where the snow, resting on the long rank grass, stretched out in all directions a smooth, white, unbroken surface, till it terminated in the horizon, I have seen a party of men tearing up the *houses* built by musk rats, in swamps formed during the summer rains, in hopes to get at the water which sometimes lies below them, and then drinking that foul and stinking water with the utmost avidity.

But it is only on the plains that the experienced hunter is exposed to such hardships. When he has to perform a long journey in winter, an essential article of his equipment is a small pot or kettle, in which snow is melted and the water boiled. It is necessary to boil the water, because if the snow be merely melted, the water has a smoked and bitter taste, and is not refreshing to drink: but when the water is boiled and then cooled by throwing into it a quantity of pure snow, no spring water is more delightful to the taste, or more satisfying to the wants of the thirsty traveller.

In the woods and sheltered places there is seldom any difficulty in procuring this refreshing drink; but on the plains no fuel can be procured: the cold, too, is so intense as to render a delay to look for fire-wood often

most hazardous, and at all times very inconvenient: for, should the wind become violent, it tears up the surface of the snow, and bears it along in such clouds as to obscure the sun, and to hinder even the Indian for days from proceeding on his journey.

In such situations the value the Canadian attaches to his dogs can be most correctly appreciated. The stranger who sees the voyageur paying fifty pounds for three *small* animals, is disposed to laugh at the simplicity of the purchaser. Larger animals of the same kind would unquestionably appear more deserving of the price: but even the largest, most men would be disposed to think, were at that sum far too dearly purchased. But suppose this Canadian overtaken by such a storm, in the middle of an extensive plain; ignorant of the direction of his home; the path leading to it covered, in many parts, with ten or twelve feet deep of snow; and the atmosphere so filled with drift as to render it impossible for him to see the foremost of his three little dogs,—this man, apparently so helpless, so certain of being lost, who prides himself in watching and directing, on other occasions, even the slightest movement of his canine companions, throws himself on his sledge, calls to the animals to advance, leaves it to them entirely to determine what direction they shall take. This anxiety about his safety, if at all excited, lasts only while they are dragging him in all directions, to recover the true path; for by the barking of the leader he quickly learns that the track has been regained: and then sweeping, like the wind, over the slender crust of snow, through which larger dogs sink and flounder, and perish with fatigue, he is carried to his own fort, or to the nearer tents of some friendly Indians.

Sometimes the traveller finds it safer to remain until the storm has passed or somewhat subsided. It seldom continues long, and fair weather invariably succeeds; and as there may be many tracks in opposite directions, and as the sagacity of the dogs cannot then determine the one which conducts to the post their master would arrive at or avoid, he takes off their traces and gives them a little food; changes his mocassins and puts dry socks about his feet; then rolls himself in his blanket or buffalo skin; and with his gun by his side, lies down *deep* among the snow. With these necessary precautions, a human being may convert the snow into a safe, warm, and comfortable bed, when the thermometer is many degrees below zero, and when to sleep on its surface, even if wrapped in leather, would be followed by immediate and certain death from the effects of the intensely cold and penetrating wind. The dogs come and stretch themselves upon their master. The whole party are soon asleep,

and in such a resting-place many besides myself (says Mr. Sloane, in feeling and eloquent language,) have spent a solitary yet comfortable night, in the neighbourhood of wolves, with many miles between us and any other human beings, and risen next morning in health and strength, to proceed on our journey, and to offer thanks to a watchful Providence who had not only protected us during the night, but who had led us back in our dreams, to our distant country and homes, and who had surrounded us, while thus sleeping on our snowy couch, with the forms of the friends and companions most deserving of our love.

THAT *the voice of the common people is the voice of* GOD, is the common voice of the people; yet it is as full of falsehood as commonness. For who sees not that those black-mouthed hounds, upon the mere scent of opinion, as freely spend their mouths in hunting counter, or like Actæon's dogs in chasing an innocent man to death, as if they followed the chace of truth itself, in a fresh scent. Who observes not that the voice of the people, yea of that people that voiced themselves the people of GOD, did prosecute the GOD of all people, with one common voice, *He is worthy to die.* I will not therefore ambitiously beg their voices for my preferment: nor weigh my worth in that uneven balance, in which a feather of opinion shall be moment enough to turn the scales and make a light piece go current, and a current piece seem light.—ARTHUR WARWICK.

EASY LESSONS ON REASONING.

LESSON I.

§ 1. EVERY one is accustomed more or less to employ Reasoning. There is no one that does not occasionally attempt, well or ill, to give a Reason for any opinion he entertains;—to draw Conclusions from what he sees around him,—to support those conclusions by some kind of Arguments, good or bad,—and to answer the arguments brought against him.

Now all these expressions,—"giving a reason"—"drawing a conclusion"—"bringing forward an argument"—relate to one and the same process in the mind, that which is properly called "Reasoning." And the same may be said of several other expressions also; such as "inferring" or "drawing an inference,"—"proving a point,"—"establishing a conclusion,"—"refuting an argument,"— &c. All these expressions, and some others besides, have reference, as we have said, to the process of Reasoning.

§ 2. And this process, it is important to observe, is, in *itself*, universally, the *same;* however different the subject-matter of our reasoning may be, on different occasions.

The same is the case with Arithmetic. We may have to add, or subtract, multiply, or divide, certain numbers, either of Pounds-sterling, or of men, or of bushels of corn, &c., but tho' these are very different things, the *arithmetical-process itself*, in each of the operations, respectively, is always the same. For instance, to "multiply" always means to take one number a certain number of times; whether it be men, or miles, or days, that we are numbering.

So it is also with Grammar. The Nouns and Verbs, and other Parts of Speech that Grammar treats of may relate to very different subjects, and may be found in various kinds of Compositions; such as works of Science, History, Poetry, &c., but the rules of Grammar are the same, in all.

So also the art of Writing (and the same may be said of Printing) is in itself the same, however different may be the kinds of subject-matter it is employed on.

Now the same is the case (as has been above said) with Reasoning. We may be employed in reasoning on human affairs, or on Mathematics, or on Natural-history, or Chemistry, or other subjects widely different from each other. But in every case the Reasoning-process is, in itself, the same.

§ 3. Any Debate, [or Disputation] when you are endeavouring to bring others over to your opinion, is *one* of the occasions on which Reasoning is employed; and the word "arguing" is by some persons understood as having reference *only* to cases where there is a *dispute* between those who are maintaining opposite opinions. But this is a mistake. At least, it is a mistake to suppose that the use of "Arguments"—if we understand by that, the use of Reasoning—is confined to the case of *disputes;* or even that this is the *principal* employment of it. There is no set of men less engaged in dispute and controversy than Mathematicians; who are the most constantly occupied in Reasoning. They establish all their propositions by the most exact proofs; so complete as not even to admit of any dispute.

And in all other subjects likewise, a sensible man when he wishes to make up his mind on any question will always seek for some sufficient "Reason" [or "Argument"] on which to found his conclusion.

Thus, a Judge, before whom any Cause is tried, is occupied in weighing the Arguments on both sides, that are brought forward by the respective Advocates. He (no less than they) is engaged in Reasoning; tho' the Advocates are *disputing*, and the Judge is not.

A Physician, again, reasons from what he has read, and heard, and seen, in order to draw his conclusions on medical questions;—a Statesman, in political questions;

—a Merchant, in mercantile matters; and so, of the rest.

§ 4. But when any dispute does take place, between persons of opposed opinions, it may be observed that the worst-educated,—those who are the most unskilful, in reasoning, or in clearly expressing their reasons,—are almost always the most apt to grow angry, and to revile each other, and quarrel.

And even when they do not give way to anger, they usually, after a long discussion, part, without distinctly understanding what the difference between them really consists in: neither of them having clearly expressed his own meaning, or fully understood the other's.

Indeed it often happens that two persons who are disputing, do, in reality disagree much less in their opinions than they themselves imagine; or perhaps, not at all. And hence it is that the word "misunderstanding" has come to signify, a *quarrel;* because quarrels so often arise from men's not clearly understanding each other's meaning.

Again, it often happens that a person not without good sense, will give such weak and absurd reasons for his opinion, even when it is a right one, that instead of convincing others, he will even produce an opposite effect.

§ 5. In order to avoid such inconveniences, and to conduct the process of Reasoning as clearly, as correctly, and as easily, as is possible, it is a great advantage to lay down accurate explanations of the *principles* on which Reasoning proceeds, and to employ for the purpose a technical *language;* that is, a regularly-formed set of expressions, distinctly defined, and agreed on; and to establish certain plain simple *rules*, founded on, and expressed in, this technical language.

Even in the common mechanical arts, something of a technical language is found needful for those who are learning or exercising them. It would be a very great inconvenience, even to a common carpenter, not to have a precise, well-understood *name* for each of the several operations he performs, such as chisseling, sawing, planing, &c., and for the several tools [or instruments] he works with. And if we had not such words as Addition, Subtraction, Multiplication, Division, &c., employed in an exactly-defined sense, and also fixed rules for conducting these and other arithmetical processes, it would be a tedious and uncertain work, to go thro' even such simple calculations as a child very soon learns to perform with perfect ease. And after all, there would be a fresh difficulty in making other persons understand clearly the correctness of the calculations made.

You are to observe, however, that technical language and rules, if you would make them really useful, must be not only *distinctly understood*, but also learnt, and *remembered* as familiarly as the Alphabet; and employed *constantly*, and with scrupulous *exactness*. Otherwise, technical language will prove an encumbrance instead of an advantage; just as a suit of clothes would be, if, instead of putting them on and *wearing* them, you were to carry them about in your hand.

§ 6. It has been accordingly found advantageous, in what relates to the Reasoning-process, (as well as in the case of mechanical operations, and of calculations,) to lay down explanations, and rules, and technical terms; answering to those of Arithmetic, Grammar, and other branches of study.

And the technical terms and rules, of Grammar, are not at all shorter, or easier to be understood and remembered, than those pertaining to the present subject.

You may perhaps meet with treatises professing much more than what we here propose;—with works pretending to teach "the right use of Reason;" (not Reasoning, or "Argumentation" merely, but the whole of the *Human Intellect*) and giving rules for forming a judgment on every question that can arise, and for arriving at all truths in any subject whatever. But such pretensions, however high-sounding and attractive, are fanciful and empty. One might as well profess to teach the "right use of the bodily-organs," and to lay down a system of rules that should instruct a man in all manual arts and bodily exercises at once.

If you do but teach a person to ride, or to draw, or to spin, &c., something is gained: but if you should profess to lay down a system of rules to teach *all these at once*, and also the business of a shipwright, and a musician, and a watchmaker, and everything else that is done by means of the bodily-organs, you would teach, in reality, nothing at all.

And so it is in all subjects. It is better to undertake even a little, that it is possible to accomplish, than to make splendid professions which can only lead to disappointment.

After all indeed, it cannot be expected that, in Reasoning, any more than in other mental exercises, men of very unequal degrees of intelligence should be brought to the same level. Nor is it to be expected that men will always be brought to an agreement in their conclusions. Different men will have received different information respecting facts; or will be variously biassed, more or less, by their early prejudices, their interests, or their feelings.

But still, there is something gained, if they are taught, in respect of the Reasoning-process itself, how to proceed rightly, and to express themselves clearly; and if, when they do not agree, they can be brought at least to understand wherein they differ, and to state distinctly what is "the point at *issue*" (as it is called) between them; that is, what is the real question to be decided.

And it is just so, in the case of Arithmetic also. Two persons may differ in their statements of an Account, from their setting out with some difference in the *numbers* each puts down;—in the *Items* (as it is called) of the Account. And no rules of Arithmetic can prevent such a difference as this. But it is something gained if they are guarded (as arithmetical rules do guard us) against differences arising out of errors in the *calculation* itself.

A WARM SUNNY DAY IN WINTER.

So bright, so beautiful the day,
So sunny and serene,
I almost think the month of May
Has stolen in unseen:
And hoary Winter flies the while
Across the stormy wave,
To lose the lustre of her smile
In some dark northern cave.

The gurgling rivulets gaily run,
Freed from their icy chain,
As if they deemed the summer sun
Shone on the earth again,
And swiftly from each hill and dale,
Where'er is gently felt
The warm breath of the southern gale,
The snowy mantles melt.

Such sunny days in northern climes,
Where reigns the winter drear,
Gleam brightly through the storms at times,
The weary heart to cheer;
And many a soothing hope they bring,
And many a tale they breathe,
Of all the coming joys, when Spring
Her leafy crown shall weave.

Thus sometimes to the Christian's soul
E'en in a world like this,
Where clouds of sin and sorrow roll,
A foretaste of the bliss
Reserved for all the saints of heaven
In realms of endless day,
Is kindly for a moment given
To cheer him on his way.—WINSLOW.

LETTERS TO THE READER.

No. V.

MY DEAR READER,

Can you tell me how it happens in England, where comfort has been so successfully promoted by knowledge in the use of money, that our domestic architecture should still depend, as much as it does, upon styles, and taste so-called? There are certain conditions of moisture, temperature, soil, &c., that are peculiar to each country, of which, some are favourable, and others injurious, to animal health. Man, although capable of existing in every climate, is still susceptible of the influences of all, and the object of the builder should be to provide a shelter against external, injurious agents. In hot and cold latitudes, opposite states exist in nature, and should, therefore, be met by art with different adaptations. Yet in our own temperate climate, where the main object should be to invite air, and heat, and light, eastern verandahs darken both doors and windows. In our wet soils, with an atmosphere saturated with watery vapour, trellis-work of creeping plants spreading over the walls of houses, and thus preventing the drying action of the winds, is considered ornamental.

Supposing that we wanted to choose a dwelling, the first point of the inquiry, in every country, would be whether the situation were damp or dry. The necessity of draining wet soils for the purpose of rendering them fit for the production of a healthy vegetation, has long been recognised by the farmer. In districts, where the art of drainage was more generally adopted, a marked improvement also took place in the appearance and health of cattle. Fevers likewise less frequently attacked the inhabitants, and diseases of the lungs were not so numerous. In cases where the experience of these facts has been neglected, and new buildings have been raised over an unprepared foundation, disease has invariably followed. The town of Kingston, in Surrey, is tolerably well drained, and healthy; but being situated at an inconvenient distance from the Southampton Railroad, a new town bearing the same name was suddenly run up in the neighbourhood of the Station. But the soil on which this was built is retentive of moisture, and the under-drainage was imperfect. Fever therefore became frequent in Kingston-upon-Railway, while the old town remained comparatively free from the same disease.

If the dead animal and vegetable matter which lies upon the surface of the soil be either perfectly dry, or is dissolved in a large quantity of water, it is harmless to the health of man. But no sooner is this liquid solution of organized materials evaporated into the air than man and beast die of alarming disease. So long as floods stand upon lands, sheep are not attacked with the "rot," and the reason is evident. The poison is diluted with, and fixed in, water. But the more this fluid is evaporated by the sun, the stronger will be the putrid sediment. No longer fixed in water, but decomposed by heat, it rises as an invisible gas, or vapour, destructive to animal existence. Again, if the heat continue and the earth becomes parched, the danger ceases; the atmospheric vapour is dissipated. In Egypt even the plague dies away at the commencement of the hotter and drier months.

The rains which fall upon all the different kinds of rocks and soils readily sink through gravel and sand, and porous loams, but remain in considerable quantities upon clays. It is within the hopes of agriculturists to be able, either by mutual consent, or the assistance of the government, to drain the excess of surface-water *from* the strong clayey lands *to* the lighter and more porous soils, and thus improve both by the same operation. In its course to the lower levels it is proposed that the drainage water should circulate through towns and villages, and wash away all kinds of refuse, in the form of liquid manure for the use of the farmer. The sweepings of the streets of the town of Cape Coast upon the western shore of Africa are profitably washed for the gold-dust which is a product of that country. And the sweepings of our own streets if washed in underground channels from the precincts of human dwellings into the liquid manure-tank of the agriculturist, would likewise produce not only gold, however, but an increased supply of food, as well as freedom from fever.

It is a common error to suppose that houses placed on high levels are dry and healthy. They are frequently neither the one nor the other. By an admirable economy of nature, much of the higher and sloping land is remarkably retentive of moisture by reason of the closeness of its mechanical structure, designed for the manifest purpose of preventing the too rapid gravitation of the watery food of plants. If hills were universally composed of porous rocks, and valleys were covered with impervious clays, the rains would soak through the former, and leave them barren, while the valleys would be changed to lakes. The husbandman would then be compelled to raise, at a vast expense of time and labour, the water essential to the production of vegetable food. The present merciful conditions, however, ask only the exercise of reason to regulate its ultimate distribution. But the diseases that are produced by the evaporation of neglected surface-water remind man of the absolute necessity of using up this unemployed capital of nature.

Of what materials should the walls of houses be composed? Porous stone, and bricks that are not thoroughly burnt, will absorb moisture from the ground, and give it out into the rooms. To prevent this it is necessary that the foundation should be constructed of materials calculated to resist the action of water. For this purpose slates are often laid above the mould, but these are soon destroyed by damp. Even Roman cement has been found too porous. Dark coloured bricks, having a glazed or partially vitrified surface, laid in a bed of concrete, (which is a mixture of lime with river gravel) forms, however, an excellent foundation. It has been suggested that a course of well-burnt bricks set in asphalte, or mineral bitumen, would effectually prevent the absorption of water, and a favourable opinion of this plan has been expressed by intelligent architects.

A thatched roof is very picturesque, and harmonises prettily enough with the rural landscape, but is a dangerous fuel to accidental fire, and is objectionable in other respects.

The cottages at Waddesdon, and some of the surrounding parishes in the Vale of Aylesbury, are constructed of mud, with earth floors, and thatched roofs. The vegetable substances mixed with the mud to make it bind, rapidly decompose, leaving the walls porous. Thatch placed in contact with such walls speedily decays, yielding a gas of the most deleterious quality.

Thirty-one persons residing in Binton and two other villages in the neighbourhood of Stratford-on-Avon, were attacked in the *winter* of 1839 with what is called *autumnal* fever; which is a disease produced by the decomposition of the dying vegetation of the summer. Seven of the cases proved fatal. Dr. Thompson, of Stratford-on-Avon, observes:—

As almost all the cottages in which there had been fever were thatched, and the thatch in many of them was in a very rotten and insufficient condition, it is not improbable that slow decomposition in the thatch from the unusual quantities of rain which had fallen might have been going on and contributed to the production and continuance of the fever. It has been observed by others, I believe, that it is more difficult to get rid of fever in thatched than in slated cottages.

In these instances the fires within the dwellings acted the part of the autumnal sun; and vegetable matter rotting under the united influences of heat and moisture

produced, as it ever will, the infection of a dangerous disease.

It is important that the ground floor should, for the sake of dryness, be raised above the level of the surrounding country. But if the kitchen should be underground, this will not be habitable, whatever may be the nature of the soil in which it is sunk, unless the drains are carried still lower in the earth. Where this has not been done, I have seen bars of soap, placed in such a situation, melt down, as it were, into a shapeless mass, and partially dissolved away by condensed atmospheric moisture. After continued rains water may be seen standing for days in the open areas of some of the finest mansions at the western part of the metropolis, whereas the poorest cottage built on a better level with respect, either to the natural or artificial means of drainage, would be clean and dry

> Something there is more needful than expense,
> And something previous even to taste—'tis sense;
> * * * * *
> 'Tis use alone that sanctifies expense,
> And splendour borrows all her rays from sense.

The red tiles and bricks with which many cottages are floored absorb large quantities of water. It has already been stated in the *Saturday Magazine**, that the Berkshire tiles used for this purpose, suck in, each of them, when they are washed, as much as half a pint of water. To prevent this porosity, it is the custom in the Mediterranean, where dwelling-houses are mostly flagged with stones, to saturate them with oil when they are first laid down. In other instances they are painted with ornamental patterns in imitation of mosaic work. Mr. James Smith, of Deanston, near Stirling, has introduced into his cotton-mill a thin flooring of wood over a solid base of stone, and it has been observed that his workmen are less subject to rheumatic and other affections of the joints than others who are accustomed to stand upon unprotected stone.

The shaft of the chimney is frequently too large and too short in the smaller tenements. The wind, when the atmosphere is clear and light, forms a strong ascending current which carries off much of the heat of the fire that would be otherwise radiated through the room. When, however, the weather lowers, the descending currents of cold air, and smoke, destroy the comfort of the inmates.

If the chimneys constantly smoke, a loss of health *must* follow. I do not say that disease, so well defined as to receive its artificial name from the physician, will invariably make its appearance; but that the average amount of health enjoyed by a family under such a condition will be lowered. The first act of breathing is to inspire atmospheric air. Oxygen gas, of which this air is, in part, composed, is essential to the purification of the blood from carbon. But if we confine a few cubic feet of air in a sitting room, and by means of an ill constructed chimney, diffuse smoke, which is a form of carbon, throughout the apartment, we compel the lungs to breathe more of the very substance with which the blood is already saturated, and which it is the function of the lungs to remove. Overcrowding public or private places of assembly, where the breathings of a mass of people saturate the confined air with carbon, produces the same effect.

I sat, (says a philosophical traveller,) three hours in the gallery of the senate chamber (United States), and afterwards experienced those debilitating, irritable, and unpleasant sensations which are generated by imperfectly decarbonized blood.

Connected with this part of the subject is the error of allowing trees to overhang, or creeping plants to cover, the walls of houses. Thereby light, and heat, and air, are obstructed, insects are harboured, and the wind prevented from carrying off the damp. It is true that vegetation, during daylight, performs the important function of absorbing from the atmosphere the excess of carbon that is exhaled by animals; leaving the oxygen free to be again inspired by the latter. But these results are not obtained by any local, or partial, action following human efforts. They are the general provisions of an omnipresent Creator. Gases are by nature's law diffused so rapidly that, notwithstanding the varied chemical actions which are constantly taking place upon the surface of the earth between inorganic and organized bodies, yet the main ingredients of atmospheric air are always found unaltered either as regards quantity, or quality. Foreign substances, such as smoke, gas, and animal and vegetable vapours, become mixed with air, and it is the duty, as well as the interest of man, to prevent this deterioration. But the beautiful economy of sustaining vegetable and animal life by providing that the one class of creations exhales what the other must inhale, and of ensuring an invariable uniformity of this aërial food, includes some of the most universal processes of nature, which are, therefore, far removed from the desultory superintendence of mankind.

Because vegetation is thus healthful in the mass, it by no means follows that trees are wholesome neighbours. If their roots run near the foundations of a house, they cannot fail to harbour a constant and injurious land-spring. The dew and rain hang heavily upon their leaves and branches, and the adjoining walls become painted with green and dank layers of incipient vegetation. Ivy and other climbing plants which are so beautiful when festooned with their natural grace and freedom from withered trees and crumbling ruins, lose their character when they choke the covered door-way, and intrude from stiff trellis-work into every window. The nets of the geometric spider, which in the summer months may be seen spread from point to point upon the vegetable wall, are of exquisite manufacture, but would be much more ornamental to the shrubbery. In short, I think that there is more real poetry, as well as science, in welcoming those natural influences of light and heat and air, which increase the health and consequently the happiness of homes, than in attempting to imitate, I need not say how unsuccessfully, the absence of art in nature.

The means of ventilation are more important than the size of the rooms.

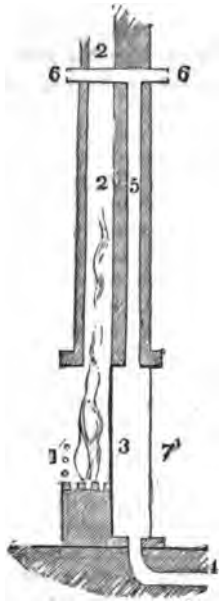
It has been assumed that apartments containing a certain number of cubic feet of space, are all that is requisite for life and health, whereas if a spacious drawing-room be completely closed against the admission of air, an inhabitant confined to it would in time be stifled, whilst, by active ventilation, or change of air, men working in connexion with diving-machines live in the space of a helmet, which merely confines the head.

Vitiated air not being seen, and the air which is pure in winter being cold, the cold is felt and the air is excluded. The great object hitherto has been to obtain a circulation of air which is *warm* as well as fresh.—*Sanitary Report.*

This end has been obtained, even for the poorest dwellings, by means of a simple and inexpensive stove which Sir Stewart Monteath has caused to be erected in his agricultural cottages. The following engraving represents a section of this stove, and a reference to the figures will explain its principle.

A four-roomed cottage can thus be well warmed below, and kept dry throughout, by means of one ordinary fire. You will not appreciate the value of the cheap and simple apparatus by which this object is obtained, unless you are fully acquainted with the effects of our cold and damp climate upon animal health. It may occur to you that the frequent mention which I make of the causes of bodily disease is out of place in the *Saturday Magazine*. But let me remind you while it is more especially the office of the physician to *cure* disease, that it is the undoubted duty of all to *prevent*, as far as reason will enable us, those physical causes which depress our moral and intellectual energies.

* See Vol. XXI., p. 247.



1. *Kitchen fire.*

2. 2. *Chimney.*

3. *Hot air chamber.* This is a cast iron box, which forms the back of the kitchen grate

4. *Cold air pipe, or passage;* made with brick, or stone, or iron piping, communicating with the open air for the purpose of feeding the hot air chamber with an ascending current of fresh air.

5. 5. *Hot air pipe,* receives the ascending current of air which becomes heated by passing over the back of the fire. At the top this pipe branches off at right angles, and terminates near the floor in the two sleeping rooms above.

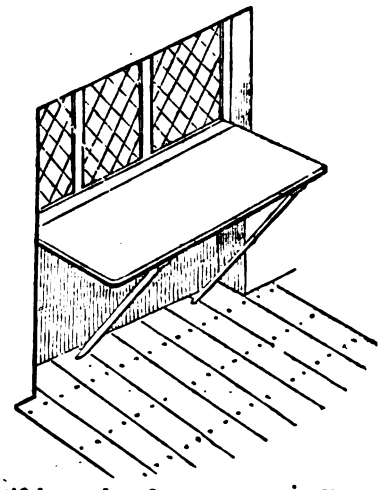
6. 6. *Gratings* to admit the warm air from the hot air pipe into the bedrooms. The addition of sliding valves over the face of the gratings would serve to cut off the current of warm air during the summer, and when otherwise required.

7. *Sitting-room,* into which sufficient heat is radiated from the hot air chamber, not only to warm the apartment, but even to dry wet linen.

Of these, as they exist in England, cold and damp are the chief. A hot *dry* air and soil, as at Malta, are proved to be remarkably healthy. A cold *dry* air and soil, as in Canada, are equally so; but heat with moisture, as in India, and cold with moisture, as in England, are both destructive of human life; although the rapidity with which diseases run their course in hot climates makes them more startling, and the deaths apparently more awful. But the slow and insidious causes, namely, damp and cold, that are at the present moment undermining the lives of thousands in this country, produce effects equally awful to reflective minds. The progress of natural knowledge is daily adding to the power which we possess over the healthy growth of society. It is, therefore, daily adding to our responsibilities, and unless we use up our facts for the good of all, Christianity will condemn us as a selfish generation. The time, I hope, is coming, when *education* will include the knowledge of such practical facts as bear upon the well-being of man, whom his Creator has commanded us to befriend.

I must not forget to observe, that to complete the means of ventilating the poor man's cottage, it is necessary that the windows should be made to open. Believing that this part of the lower class of houses was too expensive, and generally ill constructed, the Highland Society lately offered prizes for improvements in cottage windows. Various specimens were laid before the directors of the Society for inspection. Some were made of zinc, but these, as well as others formed of wood, and lead, would not admit of repair by the cottager himself, and it was deemed essential to cheapness, as well as to prevent the unsightly substitutes of paper, rags, &c., that the labourer himself should be able to replace a broken pane. Cast-iron frames were thought to be least objectionable, and these were manufactured at a cost of five shillings each, without the wooden frames.

The following convenient shutter for the cottage window will, I have no doubt, be generally adopted. Mr. Loudon, to whom we owe so many improvements in the structure of our dwelling-houses, describes it as hung on hinges in such a manner as to fall down into a recess below the window, during the day time; and consequently quite out of the way when not wanted for shutting up the house, or for temporary purposes. The idea suggested itself, that shutters be occasionally used as a table or ironing board; and to effect this end, two moveable bars as supports were let into mortices in the floor, and made to abut against similar mortices made in the ledges on the under side of the shutters. The two cornices were slightly rounded, and the upper surface was left plain without paint. Two swing iron or wooden brackets might be used instead of the wooden bars, as they could also be folded back into the recess.



A plentiful supply of pure water is an essential to cleanliness, and without cleanliness there can be neither bodily health, nor moral self-respect. If a river be the source of supply, it should be ascertained whether the sewers of the nearest town are not discharged into its channel. The comparative impunity with which the waters of the Thames are used for domestic purposes in London, has been explained by the calculation that its volume exceeds, by 10,100 times, that of the streams of impurities which are daily discharged into its bed. But during the warmer months the water dissolves a much larger proportion of its putrid contents. The sewers of the city of Cork are emptied into the river Lee, and several years ago, the troops at the old barracks, being supplied with the water of this river, were attacked with violent disease. The surgeon, suspecting the cause of the affection, employed a number of water-carts to bring water for the troops from an unpolluted spring called the Lady's Well. The sickness then disappeared.

The proximity to the dwelling-house, of a well-drained open space for bodily exercise, is of vast importance to the inhabitants of towns. In reference to this subject, the Registrar-general, in his *Third Report on Births, Marriages, and Deaths in England,* observes,

Neither the men, nor all the masters, appear to be aware that the respiration of pure air is indispensable; that the body requires as much care as their tools, instruments, and machines, and that without it neither the body nor the mind can be kept in health and vigour. The new parks and public walks will afford the artisan an opportunity of refreshing his exhausted limbs, and respiring the fresh air; and the health and temper of the sedentary workman may be much ameliorated by affording facilities in towns for athletic exercises and simple games out of doors, which, while they bring the muscles into play, unbend, excite, and exhilarate the mind.

I have now, my dear Reader, pointed out a few of the things which are more essential to the formation of a healthy dwelling, than the mere imitation of certain styles of architecture. It is true that "the external condition of the residence, and the apparent rank it holds, is not without a beneficial moral effect on the occupants, by increasing their self-respect and pride in the decencies of life." Yet so long as the means of healthy shelter are neglected; while, as Mr. Loudon says, "houses are bedaubed with ornaments that have not sufficient relation to use," and especially just at present, when the "*florid style*" is becoming fashionable, we may fairly use to the designers, the words which Pope applied to the mansion of a noble duke.

Thanks, sirs, 'tis very fine,
But where d'ye sleep, or where d'ye dine?
I find by all you have been telling,
That 'tis a house, but not a dwelling.

Believe me ever yours sincerely,

F.

JOHN W. PARKER, PUBLISHER, WEST STRAND, LONDON.

THE

Saturday Magazine.

No. 688. MARCH 25TH, 1843. Price One Penny.

THE TRANSPLANTING OF FULL-GROWN TREES.

THE TRANSPLANTING MACHINE MOVING A BEECH TREE.

II.

The method of transplanting invented by Sir Henry Steuart is called the "Preservative," in contradistinction to the "Mutilating," method, so justly complained of in a former article. The inventor of the new method considered all the circumstances under which trees grow, and endeavoured in his operations to place the tree with respect to external and internal circumstances precisely the same as before removal.

In the selection of subjects for transplanting attention must first be directed to the adaptation of trees to their proper soils. The sycamore, the lime, or the wild cherry do not grow naturally in a clayey soil, and must not be transplanted into one:—the oak and the elm do not thrive on light sand or gravel, but, on the contrary, on the deepest and loamiest land, and in the case of the oak, even on a clay bottom. The nature of the subsoil is of great importance as influencing degrees of moisture. In fact, although the art of transplanting full-grown trees may be said to be perfect, it by no means follows that trees can be moved from one situation, and placed at pleasure, however carefully, in *any* other, for it often happens that where the planter is anxious for the grand effect of the oak or chesnut he must be content with the inferior forms of the lime or the beech. Sir Henry Steuart gives a sensible maxim on this point, viz., that those trees about a place will always look the handsomest that thrive the best, and no peculiarity of famification nor delicacy of foliage can ever compensate for a deficiency of luxuriant and full health.

Another error in the selection of trees for transplanting is in taking them from the close shelter of woods and plantations, and placing them in an open park, where they are exposed on all sides to the severities of the climate, and consequently soon sicken and die. A similar want of judgment is observable in selecting young and tender plants from the nursery, and placing them singly in the open field without any regard to shelter.

An important element in the success of the new method is that the soil into which the trees are transplanted is to be of a superior quality to that from whence they were taken, or at least that portion of it applied immediately to the rootlets should have an addition of good manure. In the selection of subjects particular attention is directed to the following points:—1st., the tree should have a superior thickness and induration of the bark compared to that of trees which have grown up in a crowded state; 2nd., stoutness and superior girt of the stem; 3rd., numerousness of roots, fibres, and rootlets; 4th., the extent, balance, and closeness of the branches. If a tree, otherwise desirable, does not possess these *protecting* properties, it must be provided with them previous to removal. If the branches be tolerable, but the roots deficient, they are cut round, and the lateral growth encouraged: if the deficiency be in both branches and roots, a quantity of peat compost mixed with tolerable soil of an opposite quality to that of the ground where the tree stands, is to be applied in a direction sloping outwards from the tree to the extent of the roots. Into this loose mould the genial rays of spring will enter, and carrying with them carbonic acid from the atmosphere, render the whole the most desirable food for the plant. Thus excited, the fibrous roots, which always strike upwards, will during the first year nearly

pervade the mass: by which means both the root and the branches will soon be improved, and after the third or fourth season the tree will be fit for removal. This effect on the roots may also be produced by cutting a trench round the tree at a proper distance from the stem, and filling up the trench with good soil and manure: in two or three years the roots will be increased to a much greater extent than could be produced by unassisted nature, and these roots act as so many additional mouths, and take up food proper for the nourishment of the plant. This method also gives considerable facility to taking up and replanting the tree. If the branches be overgrown they may be reduced so as to balance at the top. To assist the bark, the tree must be freely exposed to light and air.

In proceeding to remove a tree, especial care must be taken to injure the roots as little as possible. Roots spread in the ground with a far greater multiplicity of ramification than the branches. From the principal root proceed the buds that give rise to the primary rootlets, and these again give off minuter shoots. To take up these minute parts, an instrument called a tree-picker is employed: it resembles the miner's pick, but has only one point or prong, which forms an angle somewhat more acute with the handle. It is made very light; dexterity, rather than force, being necessary for its use.

The first operation is begun with the cautious use of the spade and picker, to find the extreme points of the rootlets. This being done, a trench, between two and three feet wide, is opened round the tree, and cut into the subsoil, or even deeper, should the roots have penetrated so far. The bank in which the roots seem to lie, is then undermined to the extent of eight or ten inches, to facilitate the operations of the picker. As the roots and rootlets are extricated, the mould falls into the trench, and must be shovelled out: by degrees, an immense body of roots and rootlets, amounting to thousands and even millions, is disclosed, and these are carefully turned aside or bundled up, so as to make room for the workmen, three or four of whom are working at different points, and gradually approaching to within three, four, or five feet of the stem of the tree. And here the process of extrication ceases, as it would be imprudent to advance nearer. A fall of earth is left round the stem, of as large a size as the nature of the soil will permit; and also a quantity of the original green sward, both of which if they can be taken away with the tree, will assist future operations.

The tree may now be left for a time, taking care to protect the exposed roots by covering them over with small branches of spruce fir, and turf; or it may be removed at once to the pit of prepared soil, previously got ready for its reception.

The transplanting machine being brought up to the tree, and the bar lashed to the trunk, a rope is passed round it, and with the assistance of a horse the tree is pulled down into a horizontal direction, and nicely balanced on the pole, with many precautions and dispositions best understood by reference to the cut, which shows the machine in motion, bearing a beech-tree twenty-eight feet high, with a stout stem, a beautiful top, and roots more than twelve feet long The persons seated in the tree and engaged about it, perform the useful offices of steersman, balancemen, &c., every possible means being taken during the transit to prevent injury to the roots and branches.

Having arrived at the spot destined for the reception of the tree, the director of the work ascertains that the root and the pit fit each other. A bed is then prepared in the centre of the pit for the reception of the tap roots. Care must be taken to set the tree in the pit as shallow as possible, allowing sufficient food for the downright roots, and sufficient cover for the other roots; but arranging so that all the roots may have the influence of air and moisture.

For the reception of trees of about thirty feet in height the pits are about eighteen feet in diameter. The earth of the pits is trenched to the depth of about two feet, and well mixed with compost of a different nature to that of the soil; the ground thus prepared is improved by lying for a year or more, in order that the component parts of the soil may be properly mixed and mellowed.

In removing and transplanting a tree, attention must be paid to its "weather side." Almost all trees are unequally balanced, and show in their tops more or less of a "weather side." This is often a deformity, especially on the western coast. It proceeds from the tendency to throw out longer and stouter branches on the lee side, and shorter and closer branches and spray on that from which the blast assails them. Wherever the action of the air is greatest, there the greatest evolution of buds appears, and the thickest but weakest growth of boughs and spray takes place. This difference is so remarkable that any one conversant with wood can at once point out an old tree (especially a sycamore) that has been more and one that has been less exposed, at the distance of two or three hundred yards, and in winter, when there is no foliage to conceal the difference in the ramification, the thing is more striking. Hence it is one of the many improvements effected by Sir Henry Steuart's method to bring this decided tendency to elongation of the boughs on the lee side to act on the windward or deficient side, or in other words, the longest branches must be brought to face the stormy quarter.

This point being settled, the tree is brought, by a series of ingenious but easy evolutions, into such a position that it may be dropped precisely on the spot intended. The cords which confine the top are removed, and the branches allowed to gain their natural position: an active workman is sent to the top to fix two ropes transversely to each other, in order to steady the tree when freed from the transplanting machine and set up erect; another man gets under the axle of the machine, and bringing out the roots of the under side, pulls them right towards the rear in order to save them from being broken by the great weight of the descending mass: when on a signal being given, the stearsmen and his assistants, together with the balancemen, quit their stations and their hold of the pole, rope, and branches, and the tree suddenly rises to the upright position.

The position of the tree is then nicely adjusted, the transverse ropes are stretched to their utmost extent by one or two stout hands to each, in order to balance the tree and set it straight, so that it may please the eye and be firmly secured against the wind. The proper depth being regulated, the workmen seize such of the lateral roots as are long and flexible, and holding them carefully aside, expose the under bed of the roots; the finest sort of mould is to be thrown in so as to form a bank, sloping outwards, against the roots, and this bank is to be firmly trodden down. One man carefully fills in and equalizes all the hollows and vacancies, while another man with a small blunt-pointed stake pushes in the mould, and makes it firm in the cavities which the foot cannot reach. By thus diligently and firmly bolstering up round the nucleus, but yet underneath and quite clear of the great body of the roots and fibres, a sort of circular "retaining bank" is formed, which is capable of such resistance to the action of the top, that a stout man on applying his force to the transverse ropes will find it difficult or even impossible to displace the root, even with such a lever as the stem must afford him. This method of giving stability to the tree before any cover whatever is laid upon the roots is truly the *planting* of the tree, and is one of the peculiar advantages of the preservative system.

The roots, which are often from twelve to fourteen feet long, are now to be disentangled and stretched out in the most regular manner from the centre, and the thousands of fibres, *combed out*, as it were, with the

fingers, are made to cover the ground with regularity, and as nearly as may be in the same order in which they were taken up: this is a nice and difficult operation, and may require that the pit be enlarged, the great object being to afford ample space to the roots, so that they may proceed in search of food in the natural way. The different layers of roots are to be imbedded in mould, and gradually consolidated into a mass sufficiently compact, yet porous, through which heat and moisture may have free access to the fibres, and where evaporation may proceed without obstruction. If the tree have been transplanted between November and February, a slight treading over of the soil may be sufficient. If in Spring, between February and May, water may be dashed upon the roots when the covering of mould is about half finished, so as to wash it among the roots of the plant. In this way, "the roots have as good and ample range of pasturage on the fine mould which has been prepared for them as they had in their original situation, and in many cases a great deal better."

By this method it is not necessary to prop a tree after removal. In the course of thirty years Sir Henry Steuart has not had a single tree blown down; and as to deaths, the average mortality has been about one in forty or forty-five.

When the operation of transplanting is quite complete, attention must be directed to the soil, and provision made for consolidating it, in order to retain moisture, &c.: the rammer may now be used with benefit; a layer of moss may be applied round the stem, and the surface of the mould being levelled and dressed may be prepared for grass seeds. When they are sown and raked in, a roller is to be passed over the surface; they will spring up rapidly, and be of great use in retaining moisture. To cover so considerable a space with turf would be too laborious, and not be so effective or so handsome in its result.

If, during the year or transplanting, the tree bear a healthy leaf though smaller than usual, the operation may be considered as successful, except in the case of the oak and the beech, which have been known to fail in the second year. During the first two or three years the earth in the vicinity of the tree may be slightly raked and top-dressings applied, by which means a great stimulus is imparted to plants which are just recovering from the process of removal; and there are few trees that will not shoot forth with a vigour which the most sanguine planter could scarcely have anticipated.

The guards which are usually applied to young trees are very expensive and very ugly. Sir Henry admits sheep only to graze in his park, and his defence to the trees is composed of stakes of larch wood driven into the ground, and matting, the whole firmly bound with marline half-twisted and pitched. The cost of such a guard is about sixpence, and while it effectually protects the tree does not at all interfere with its beauty of appearance.

The trees transplanted in Winter must, in the absence of showers, be watered during the following Spring and Summer; and if the trees do not shoot well a liquid manure or some good compost may be usefully applied.

With regard to the expense of this method, a few details may be valuable. If a tree removed to the open park be from fifteen to eighteen feet high, and from eighteen to twenty-four inches in girth, which Sir Henry states is the smallest tree that has strength to resist the elements, and if the distance it is carried be about half-a-mile, then the expense is not on an average found to exceed six or seven shillings. If the tree be from twenty-five to thirty feet high, and from three to three and a half feet in girth, the expense is not found to be more than twelve or thirteen shillings. Sir Henry has scarcely known an instance in which plants of the largest size cost more than from fifteen to eighteen shillings.

For the various plans for transplanting trees in masses and on uneven ground; also for transplanting underwood and bushes, and for "composing copse wood," together with a variety of details on the general physiology of trees and other matters most interesting to the planter, the farmer, and even to the general reader, we must refer to Sir Henry Steuart's treatise, to which we have to acknowledge our obligations for this brief outline.

The success of this method has been so complete that Sir Henry's example has been followed by many other proprietors in the uplands or central part of the south of Scotland. That portion of the island is generally deficient in timber; and as the country is pastured by sheep, which require closer and more elevated fences than cattle, the rearing of wood by ordinary planting is expensive.

The nakedness of that part of Scotland is severely felt in the violence of the winds, which are certainly more tempestuous, and attended by more intense cold, than in some places of the country much further to the north,—the snows never falling to the same depth, or being accompanied by the same violence, on the Grampians in Perthshire, as upon the naked mountains in the counties of Selkirk and Peebles. In this part of the country, therefore, the invention by Sir Henry Steuart is of the utmost value. Nor is its value confined to those districts in which wood is wanted; for there is much in the disposition of trees, not only as respects beauty, but as regards usefulness: and by Sir Henry's plan growing timber may be moved at no very great expense, from one place to another, and that without almost the least interruption of its growth.

POWER OF LETTERS.

WHILE we were waiting for fresh horses before a little inn kept by a Jew, at the station next Tyerhova, one of the tribe of Israel came up and asked us if we would like to see some curious rocks, only a quarter of an hour from the village. As we followed him to the spot, he asked those questions, as to where we came from, what we were doing, and whither we were going, so common in most countries except our own, where they are avoided, as though every one was doing something of which he is ashamed, and which he desired to conceal. On hearing that we were English, he asked very earnestly if one Walter Scott was yet living, and expressed the greatest regret when he learnt his death. Surprised at such a sentiment from such a man, and suspecting some mistake, I inquired what he knew of Scott; when he pulled from his pocket a well-thumbed German translation of *Ivanhoe*—the very romance of persecuted Judaism—and assured me he had read that and many others of his works with great pleasure. I do not know that I ever felt more strongly the universal power of genius than when I found the bard of Scotland worshipped by a poor Jew in the mountains of Hungary.

It is astonishing to an Englishman who knows how ignorant even well-informed persons of his own country are of the literature and politics of a great part of the Continent, to find the names of the best authors of England familiar as household words among nations of whose very existence the greater part of that country is scarcely aware. In Hungary, this fact struck me with more force even than in Germany, though the taste for English literature is there immeasurably more advanced than in France or Italy. But the Hungarians, with very little literature of their own, and generally possessing a knowledge of several foreign languages, are not only entirely thrown on the resources of others for their mental food, but are thus eminently well-provided with the means of enjoying it. In many cases, I have found the originals in English, but in general they are read in excellent German translations. With what ecstatic pleasure have they told me of the new light which English literature opened to them! with what admiration have they spoken of the strong and vigorous train of thought which pervades our authors, of that scrupulous decency which they observe, of that warm love of nature they express, and of the universal respect in which religion is upheld by them! A great cause of this extension of English literature has been the judicious selection and the cheap form in which Galignani and other foreign booksellers have published the standard English works; and however disadvantageous this traffic may have been to the pockets of British authors, I am quite sure it has been a very important means in establishing and diffusing their own and their country's reputation. —PAGET's *Hungary*.

EASY LESSONS ON REASONING.

LESSON II.

§ 1. WE have said that in all subjects, and on all occasions, the Reasoning-process is in itself the same. Whether you are occupied in *refuting* an opponent, or in conveying *instruction*, or in satisfying your own mind on any point,—and again, whatever kind of subject-matter it is that you are engaged on,—in all cases, as far as you are (in the strict sense of the word) *reasoning*,—that is, employing Argument—it is one and the same process (as far as it is *correctly* conducted) that is going on in your mind.

And what this process is, must be the next point to be inquired into.

Although (as has been said) all men do occasionally reason, they are often, at the time, as *unconscious* of it, as of the circulation of their blood, and the various other processes that may be going on within the body. And even when they do knowingly and designedly use arguments, or are listening to those of another, they will often be as much at a loss to explain *why* one argument appears to them strong, and another, less strong, and another, utterly worthless, as if the whole were merely a matter of *taste;* like their preference of one prospect, or one piece of music, to another.

In order then to obtain correct rules for forming a judgment on this subject, and clear expressions for explaining such judgment to others, it is necessary to *analyse*,—as it is called,—(that is, take to pieces) the Reasoning-process. And for that purpose, we should begin by examining the most plain, short, and simple arguments, and inquiring on what it is that their *validity* [or conclusiveness] depends; examining also some of those apparent-arguments which are *not* valid, and therefore are not, in reality, arguments, at all; tho' they are often passed off for them, as counterfeit coin is, for genuine.

§ 2. You will perceive on examination, that what is called a "Conclusion,"—that is, a Proposition proved by Argument,—is drawn, in reality, from *two* other Propositions. And these are called its "Premises;" from their being (in natural order) "*premised*" or put before it.

At first sight indeed, some might suppose that a Conclusion may follow from one Premise alone. For it happens oftener than not, that only one is *expressed*. But in this case there is always another Premise *understood*, and which is suppressed from its being supposed to be fully admitted.

That this is the case, may easily be made evident by supposing that suppressed Premise to be *denied;* which will at once destroy the argument. For instance, if any one, from perceiving that "the World exhibits marks of design," infers [or, concludes] that "it had an intelligent Maker," he will easily perceive on reflection, that that he must have had in his mind another Premise also; namely, that "whatever exhibits marks of design had an intelligent Maker:" since if this last proposition were *denied*, the other would prove nothing.

§ 3. Such an argument as the above, when all the three propositions are stated at full length, and in their natural order, is called a "Syllogism." And this is the form in which all correct reasoning, on whatever subject, may be exhibited.

When one of the Premises is suppressed, [or, *understood*] which, for brevity's sake is usually the case, the argument is called, in technical language, an "Enthymeme:" a name derived from the Greek, and denoting that there is something left out, which is to be *supposed* [or understood] as being well-known.

It is to be observed, that, when an argument, stated in this last form, is met by opponents, their objection will sometimes lie against the *assertion itself* that is made; sometimes, against its *force* as an argument. They will say either "I deny what you *assume*," or "I admit indeed what you say, but I deny that it *proves* your conclusion." For instance, in the example above, an atheist may be conceived either denying* that the World does exhibit marks of design, or again, denying† that it *follows* from thence that it must have had an intelligent Maker

Now you are to observe, that these are not in reality objections of different kinds. The only difference is, that, in the one case, the *expressed* Premise is denied; in the other, the *suppressed* Premise. For the *force* as an argument, of either Premise, depends on the other Premise. If either be denied, the other proves nothing. If both be admitted, the Conclusion regularly drawn from them, must be admitted.

§ 4. It makes no difference in respect of the sense of an argument, whether the Conclusion be placed last or first; provided you do but clearly mark out what *is* the Conclusion.

When it is placed last, (which is accounted the natural order) it is designated by one of those conjunctions called "*illative*," such as "therefore,"—"thence,"—"consequently."

When the Conclusion is put first, the Premise is usually called the "Reason;" and this is designated (whether it come last or first) by one of the conjunctions called "*causal*," such as "since,"—"because," &c.

And here it is to be observed that each of these sets of conjunctions have also another sense; being used to denote, respectively, sometimes "Premise and Conclusion,"—sometimes "Cause and Effect." And much error and perplexity have often been occasioned by not attending to this distinction.

When I say "this ground is rich; because the trees on it are flourishing;" or again, when I express the same sense in a different form, saying, "the trees on this ground are flourishing; and therefore it must be rich," it is plain that I am employing these conjunctions to denote merely the *connexion of Premise and Conclusion;* or (in other words) I am implying that the one may be *inferred* from the other. For it is evident that the flourishing of the trees is not the *cause* of the ground's fertility, but only the cause of *my believing* it. The richness of the soil *follows as an inference* from the luxuriance of the trees; which luxuriance *follows as an effect* [or, *natural* consequence] from the richness of the soil.

But if again, I say "the trees flourish because the ground is rich," or (which is the same in sense) "the ground is rich, and consequently [or therefore] the trees flourish," I am using the very same conjunctions in a different sense; namely, to denote the *connexion of Cause and Effect*. For in this case, the luxuriance of the trees, being a thing evident to the eye, would not need to be *proved;* and every one would understand that I was only *accounting for it*.

§ 5. But again, there are many cases also in which the *Cause* is employed as an *Argument*, to prove the existence of its Effect. So that the Conclusion which *follows*, as an *Inference*, from the Premise, is also an Effect which *follows naturally* from that same Premise as its Cause.

This is the kind of argument which is chiefly employed when we are reasoning about the *future:* as for instance when, from favorable or unfavorable weather, any one infers that the crops are likely to be abundant, or to be scanty.

In such cases, the *Cause*, and the *Reason* [or Proof] coincide; the favorable weather being at once the Cause of the good harvest, and the Cause *of our expecting it*.

And this circumstance contributes to men's often confounding together "Cause" and—what is strictly

* As many of the ancient atheists did.
† As most of the modern atheists do.

called—"Reason;" and to their overlooking the different senses of such words as "therefore," "thence," "consequently," &c., and again, of such words as "because," "inasmuch as," &c., and also, of the words "follow," "consequence," and several others; which have all of them that double meaning which has been just explained.

INSECTS INJURIOUS TO THE FARMER.

I.

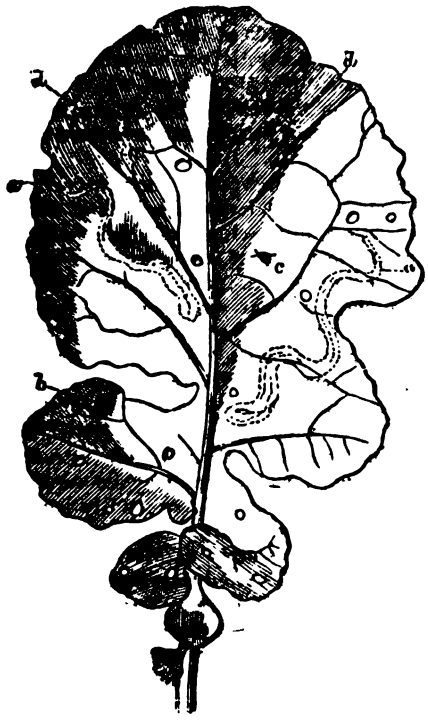


Fig. 1.

A Turnip-Leaf.

a, the burrows formed by the caterpillars.

b, a male beetle feeding.

c, a female beetle at rest.

d, holes recently eaten by the beetles.

The natural history and economy of those "living atoms," which so greatly lessen the value of the farmer's labours, must be studied with care and perseverance in order to produce beneficial results to his crops. Unimportant as insects may appear to the casual observer, their depredations are of a fearful character when whole armies of them take possession of a field; and the anxiety and loss which they occasion are so great that the farmer cannot be indifferent to the information which scientific men have collected on the subject; for it is only by a complete knowledge of the nature of the disease that the physician can hope to devise a remedy and effect a cure. Nor is the subject devoid of interest to any one of us, whether we inhabit the crowded city or the quiet village; whether we exercise the mechanical arts, or cultivate the ground; we pray for the success of the farmer when we petition the Almighty to "give us this day our daily bread."

One of the great arts of the farmer is by a judicious system of manuring and changing crops to sustain the vigour of the soil so as to produce healthy crops; but with all his skill in selecting manure and resting the land—it will, (as Mr. Curtis says,) become tired at last, and by degrees refuse to produce certain crops nearly altogether: it is even asserted of the turnip that it certainly does not grow so vigorously nor so readily as it did several years ago.

In proportion, then, as the crop is feeble it is susceptible of disease, and as insects are among the most fatal sources of disease, it is important to consider the circumstances under which crops are attacked, with a view to the discovery and adoption of efficient remedies, instead of following blindly the numerous and often expensive suggestions with which the farmer is so frequently tempted.

In some valuable articles communicated by Mr. Curtis to the *Journal of the Royal Agricultural Society of England* on this subject, and from which our information will be principally derived, the author prefers to direct attention to the different insects which effect the turnip-crop, for the following reasons:—*first*, because the turnip is a root of the greatest importance to us all; for, as he remarks,—

Without turnips, our sheep and cattle would be deprived of one great resource, so that we should be almost unable to procure fresh meat in winter, most essential to the health of man; and the land again would lose that fertility which in feeding off the turnip we secure for the succeeding crop.

Secondly, because no crop is subject to the attacks of a greater number of insects, &c., than the turnip.

First, the ants run off with an incredible quantity of the seeds; then come two sorts of turnip-fly, the striped and the brassy, which destroy the tender leaves as soon as they burst from the ground: at the same time, we have the maggot of a fly and the wire-worm, both living upon the young roots, and also a large caterpillar or grub, when they are more advanced; then follow armies of black caterpillars, reducing the leaves to skeletons, and the blight of the plant-louse, together with a minute moth; we may add also two weevils, which cause the humps or excrescences on the bulbs; with slugs, snails, and mildew bringing up the rear.

From this formidable list we select the turnip-beetle as the subject of our present article; but it will be useful first to remind the reader of the several states or changes which, with very few exceptions, mark the life of every insect:—I., the female lays an *egg*; which egg produces, II., a *larva*, which is a little animal called by various names, such as *maggot*, or *gentle*, *caterpillar*, or *canker*; *worm* or *grub*. The larva continues to feed until it is full grown, (changing its skin several times as it increases in size,) when it becomes, III., a *pupa*, *chrysalis*, *aurelia*, or *nymph*. In order to undergo this change, the larva either enters the earth as most naked maggots do, or like hairy caterpillars, spins for itself a web; but some caterpillars merely suspend themselves to a wall or rail. In this pupa or chrysalis state they remain during the winter without any symptoms of life, except when touched, until the substance of the enclosed larva has become perfected into the various members of its first parents, when, IV., the *imago* or perfect state of the insect is produced, such as a flesh-fly, a butterfly, a rose-moth, a click-beetle, a turnip-fly, &c.

Insects are divided into large masses named ORDERS; these are subdivided into lesser groups called FAMILIES; and these again comprise smaller companies called GENERA; and each of these consists of a greater or less number of SPECIES, which sometimes vary in size and colour, and such are termed VARIETIES.

The turnip-beetle belongs to the ORDER COLEOPTERA, so called from its wings being folded beneath two horny wing-cases. For certain scientific reasons dependent on its structure it is included in the FAMILY CHRYSOMELIDÆ, or golden beetles; and is one of about a hundred SPECIES forming the GENUS ALTICA, or HALTICA, a word which refers to the leaping powers of the genus. The *striped turnip-beetle* is scientifically named ALTICA NEMORUM, the latter word implying that this species frequents woods and groves; which were its haunts before the general cultivation of the turnip. In country places this little pest is called the turnip-fly, or flea; the earth-flea beetle: black-jack, &c.

From the careful investigations of Mr. H. le Keux, the habits of this little beetle first became known; previous to which the man of science as well as the practical agriculturist had been led into many false theories and erroneous applications of remedies,—results which usually accompany our ignorance, and can only be superseded by frequent and plain statements of real remedies, founded on a practical knowledge of the evil they are intended to remove.

Between April and September, the female deposits her eggs on the under-side of the rough leaves of the turnip: she lays probably about one egg daily; the eggs are very small, smooth, oval, and partaking of the colour of the leaf. In ten days they are hatched; and the little maggots begin at once to eat through the skin and to form winding burrows in the leaf, by feeding upon its pulp. These burrows (fig. 1) can be detected in their early stage by holding the leaf up to the light; but when the larvæ quit them, and the cuticles are withered, the burrows can be readily distinguished. The larvæ (fig. 2) are pale, fleshy, and cylindrical, with six pectoral feet, and a proleg at the apex: the head is furnished with jaws and large dark eyes, and the first and last segments

Fig. 2.

THE LARVA, OR CATERPILLAR.

Fig. 3.

THE PUPA, OR CHRYSALIS.

of the body are marked with black patches; they are fully fed in about sixteen days, when they quit their burrows and bury themselves about two inches below the surface of the earth, selecting a spot near to the bulb, where the turnip leaves protect them from wet and drought. Here they change into chrysalides, and probably in about a fortnight they are matured, when the beetle or fly, as it is called, quits its tomb, to attain that which, in insect life, is rather an old age; for the beetles have been kept from July until the following February. A single pair of beetles may have as many as five or six broods in a season.

The beetles are shining black, and covered with small dots: the head is rather small and has two round projecting eyes; the mouth projects a little, the upper lip and feelers being visible; just above the nose are placed two longish horns, each composed of eleven joints; the two wing-cases are moveable, and form an oval; each has an ochre-coloured stripe, sometimes approaching to white, running down the centre, generally winding a little on the outside near the middle, and curved inward at the extremity; beneath these wing-cases are the large wings, twice as long as the body, and folded up for pro-

Fig 4.

THE BEETLE, OR FLY, WALKING.

Fig. 5

THE SAME FLYING.

tection when unemployed; the legs are of a rusty ochre; the thighs pitch-coloured; the hinder thighs being very thick and formed for leaping. The mouth is furnished with two sets of teeth, or toothed mandibles, as they are named, which from their strength and horizontal action readily break the cuticle of the leaf. The beetles vary in length from one-tenth to one-sixteenth of an inch.

The turnip-beetle, in common with all the species of *Alticæ*, is distinguished by the great thickness of the hinder thighs, which confers on it the power of leaping to a great distance. The extent of its leap is about two hundred and sixteen times its own length. It seldom walks, and when at rest sits with its hind legs folded, ready to skip off in an instant if disturbed, or even when approached. In warm sunny weather it flies with ease.

This little plague is also common in Germany and Sweden. Mr. Curtis thinks it probable that in England no portion of the country is perfectly free from these insects, since every bank and meadow harbours them more or less, and they have been found also on grass lands which had not been ploughed for many years, and where there were no turnips within half a mile. But as soon as a turnip crop appears in its neighbourhood, the turnip-beetle will desert all other plants for it: and this insect appears to discover the turnip by an acute sense of smell. In a young crop the beetle destroys the two first smooth leaves, called the cotyledons, and the heart of the plant between them, by piercing them like a sieve, destroying the cellular tissue, and stopping the growth of the plant. They also feed upon the rough leaves, drilling them full of round holes (as shown in the figure), which are larger on the upper than the under side of the leaf; and if the appetite of the beetle be not satisfied, he enlarges the hole, and thus gives it an irregular form, which grows larger with the growth of the leaf. This is the origin of the large holes which may nearly always be seen on a turnip leaf.

The turnip-beetles live throughout the winter in a torpid state, and may be found under the bark of trees, beneath the fallen leaves, in the chinks of old timber and paling, the stumps of thorns and of other bushes in which the bark is not close to the stem; the hollow stems of grass also afford them a retreat during severe winter weather; but inactive as they then are, the warmth of the hand will revive them for a few minutes, and a warm sunny day such as often occurs in Winter or early Spring will seduce them from their retreats, and render them active for a while. But when Spring has fairly begun, if the weather be fine, they quit their winter retreats, and seek out sunny spots, where they may be seen in considerable numbers sitting on walls, or on dry banks, and on clods of earth protected from the wind: they have been seen in gardens as early as March; and in April on the crops in the fields; but their first and most fatal attacks are usually made during May and June. It has occasionally happened that the autumnal crops have been destroyed by them. Indeed they may be said to abound from May to October in all fields, whether of grass, wheat, oats, barley, or turnips,

The attacks of the turnip-beetle are by no means limited to the turnip: it prefers, however, those plants which are allied to the turnip, and called from the shape of their flowers *cruciferous*, or cross-bearing. Of these the leaves of the horse-radish, the common turnip, and the radish are its favourite food; but cabbages, cauliflowers, colewort, watercresses, ladies' smocks, and hedge mustard are often attacked: the charlock, or wild mustard, is also sometimes covered with them towards the end of April, and in May the leaves will be seen pierced with holes; but as soon as the turnips spring up, they desert other allied species. Hops, which belong to a different tribe of plants, are said to have been attacked by them. It is also stated that both summer and winter turnips left for seed, suffer in warm and dry weather from the attacks of the fly, injuring the flowers so as to spoil the produce of the seed. It was also long believed that the white spots or dots frequently observable on turnip seeds were the eggs of the turnip fly, and hence the seeds were steeped in brine or otherwise prepared, and sold at the seed-shops to insure the grower against the attacks of the fly. This, however, is now admitted to be a mistake; the white dots being probably the excrement of some minute insect, or particles of pollen from the flowers. The plan of steeping the seeds in oil, brine, brimstone, or milk, can have no effect in protecting the future plants from the attacks of the fly, except in rendering the plants stronger, or causing more of the seeds to vegetate, which at once accounts for the success said to be derived from the process of immersion.

In the next article on this subject, will be stated the remedies which have been proposed as effectual and economical against the attacks of the turnip-fly.

SEASONAL WILD FLOWERS.

APRIL.

There is a simple pure delight
Which the heart feasts on, in the sight
Of Nature when aside she throws
The wintry cearments that inclose
Her vegetable forms, and keep
Their senses in sepulchral sleep.
MANT'S *British Months.*

In this changing climate, Spring appears to advance with reluctance, so that many a time when we think we have bidden farewell to wintry winds, and sleety storms, they come back and take us by surprise, checking the early vegetation, and nipping the fair young flowers that begin to open to our view. Thus it is very frequently at the beginning of April, and we look in vain for any very evident increase of Spring tokens, the delicate-looking, but really hardy blossoms of the last month being alone able to bear up against the rigours of the "black-thorn winter," as this season is sometimes called, from the blossoming sloe which is peculiar to it. But long ere the month has come to an end, we find it justifying its title to the character of the "opening month of the year." The wild flowers begin to be more freely scattered, and we find blossoms opening faster than we can mark their appearance; indeed the young botanist is apt to feel bewildered as Spring advances, with the multiplicity of forms that attract his attention, demanding as they do, so much patient study, ere he can assign with certainty the rank and place they hold in the vegetable world. The best way, perhaps, to make a gradual advance in this delightful study, is to select a few examples of flowers that particularly attract our notice, and having made acquaintance with their names, and learned a few facts relating to their history, and the family and tribe to which they belong, to seek out such of their relatives as may be in blossom at the time, or may be found among our dried plants, and so get a little group, or several little groups, held together, as it were, by family ties, and therefore the more interesting objects of study.

Such groups may now be formed without much difficulty. The solitary member of the Speedwell family, noticed as blowing in February, may now be grouped with several newly arrived relations. The ivy-leaved Speedwell, or Small Henbit (*Veronica hederifolia*), grows in cultivated fields, as well as in woods, and among rubbish. It is an annual plant flowering from this period till December. It spreads on the ground, and has flat, and broadly heart-shaped leaves. The flowers are small, of a pale blue colour, diversified with lines of a deeper hue. The blunt-fingered Speedwell, or upright Chickweed (*Veronica triphyllos*), though a rare plant, may now be occasionally found in sandy fields, especially in the counties of Norfolk and Suffolk. It receives its name from the finger-like divisions of its leaves. The plant is three or four inches high, and is branched at the base, where the leaves are undivided and opposite each other, while at the top they are divided into three or five segments. The flowers are deep blue. The vernal Speedwell (*Veronica verna*), is also very rare. It was first found near Thetford and Bury in Suffolk; but as it is not likely to be met with by our readers we will not attempt to describe it.

The Speedwell family belongs to a tribe of extremely beautiful but suspicious plants, many of which are fatally poisonous, *i. e.*, the Fox-glove tribe, to which belong the curious Monkey-flowers (*Mimulus*), Slipper-flowers (*Calceolaria*), Snapdragons (*Antirrhinum*), and many other well-known plants. These plants all agree in essential characteristics, though they occasionally differ as to the form of the flower, the number of the stamens, and other subordinate points. In the next month we may make our Speedwell group more complete by the addition of several other species, such as the smooth, the common, and the beautiful Germander Speedwell. For the characters by which these are distinguished from the foregoing, we must refer our readers to Withering, or some other botanical work: our object here is merely to recommend this grouping of plants, from which we have ourselves in past years derived great delight. There is a peculiar pleasure in bringing together these pretty relatives, and tracing the family likeness between them, at the same time that we observe the distinct individual characters of the several species.

While the rose-tinted blossoms of the crab begin to adorn the hedgerow, and the sloe or black-thorn hides its leafless stalks beneath a profusion of white blossoms, and while the gardens present the lovely sight of the opening bloom of apple, peach, apricot, and nectarine, the scent and hue of lowlier blossoms are not wanting to grace the close of the month. In ordinary seasons some, if not all and more than all, the pleasant sights we speak of here are realized.

Not only that, where weak and scant
Peep'd forth the early Primrose plant,
Now shine profuse unnumber'd eyes,
Like stars that stud the wintry skies.
But that its sister Cowslips nigh,
With no unfriendly rivalry
Of form and tint, and fragrant smells,
O'er the green field their yellow bells
Unfold bedropt with tawny red,
And meekly bend the drooping head.

The Cowslip (*Primula veris*), and the Oxlip (*Primula elatior*), those beautiful relatives of the common primrose, are favourite flowers with our poets, so that we might multiply quotations in their praise. Perhaps the most fanciful description of the Cowslip is that contained in the following lines, where Shakspeare makes it subservient to the Queen of the Fairies, and alludes, it is supposed, to the institution of tall military courtiers, who were pensioned by Queen Elizabeth.

And I serve the fairy queen
To dew her orbs upon the green:
The Cowslips tall her pensioners be;
In their gold coats spots you see;
Those be freckles, fairy favours,
In those freckles live their savours:
I must go seek some dew-drops here
And hang a pearl in every Cowslip's ear.

But let us examine a little more nearly the small blossoms that mingle their varied tints on sunny banks at this season. We have spoken of the Speedwell, but there is a creeping plant, with purple blossoms, spreading itself at the foot of trees, and taking root at every joint, like the runners of the strawberry. The leaves are roundish, and notched at the edges, and the whole plant has a strong, but not unpleasing smell. This is the Ground-Ivy (*Glechoma hederacea*), belonging to the Mint tribe, and called by our Saxon ancestors *Ale-hoof*, because it was a chief ingredient in their ale. A decoction of this herb is still drunk by many persons, as a purifier of the blood, and the old writers tell us that it is also a fine strengthening eye-water, removing inflammations, smarting, and "any grief whatever."

Two species of Scorpion Grass (*Myosotis*) may also now be noticed. These are members of the same family as that truly beautiful plant the *Forget-me-not*, which does not appear till June. There are seven indigenous species of Scorpion Grass described by Sir J. E. Smith, three of which are annuals, the rest perennials. The species now in bloom are the early Field Scorpion Grass (*Myosotis collina*), growing in dry pastures, in sandy and gravelly soil, and on wall tops, with spreading flower-stalks, and small blue flowers; and the yellow and blue Scorpion Grass (*M. versicolor*) This species is so named from having a small blue blossom with a yellow throat. It is common in waste places, on walls, &c. In some of our botanical books it is spoken of as flowering in June and July; but it not

unfrequently shows itself thus early in the year. The name *Myosotis*, given to this family, means *Mouse-ear*, and is taken from a fancied resemblance of the leaves to the ear of the animal. We recommend the young botanist to try to make up this easy group during the season, (with the exception of that one species (*Myosotis alpestris*), which grows on Highland mountains, and may be considered rare,) taking care to dry each species as it comes in bloom.

In the southern parts of England that curious-looking flower the Fritillary or Snake's-head (*Fritillaria meleagris*), is found in a wild state, and now puts forth its purplish chequered bells. That rare plant the Spring Gentian (*Gentiana verna*), growing in barren and mountainous spots, is also now in blossom. But we turn from these less familiar names to notice

> The woodland Sorrel's petals pale,
> Veined with fine purple streaks.

Perhaps the little Wood-Sorrel may be considered the most elegant of all our wild flowers. It is not a universal plant in England, but where it does grow, it flowers abundantly. Extremely delicate is the stalk of the dried specimen, which well supplies to the writer the place of the growing plant: very lovely is the drooping, solitary, bell-shaped flower, white and almost of a gauzy texture, but veined with minute branchings of a purplish hue; bright, but delicate, is the green of the three little leaflets which unite to grace the purplish leaf-stalk; indeed it is a charming little plant, and well worthy of being cultivated in those districts where it is not found growing wild. It is called Sorrel on account of its pleasant acid taste which likens it to the common Sorrel, to which, however, it does not bear any outward marks of resemblance. The Wood-Sorrel (*Oxalis acetosella*) belongs to a small tribe of plants to which it gives its name, and it is itself noted for containing pure oxalic acid.

Now, too, we begin to observe in moist situations the early flowering species of a very remarkable tribe of plants, the Orchis tribe. The singular form of their flowers may have made them familiar to most of our readers, especially as some of the species have attracted special notice under the names *Bee orchis*, *Butterfly orchis*, &c., on account of the likeness to those insects exhibited in the lower lip of the flower. But the whole tribe is curious and interesting to the botanist on account of peculiarities of structure, which will be best estimated as described in scientific works. The species now in bloom, or rapidly approaching towards that state, are the Male Orchis (*Orchis mascula*), and the Spider Orchis (*O. aranifera*). From the tubers of the former species the nutritious substance called *salep* is prepared. These tubers are merely dried in an oven and pulverized, when they form a mucilage with boiling water. Dr. Lindley speaks of the Orchis tribe as containing decidedly the most curious and beautiful plants of a European Flora, and adds:—

But it is in tropical countries, in damp woods, or on the sides of hills in a serene and equal climate, that these glorious flowers are seen in all their beauty. Seated on the branches of living trees, or resting among the decayed bark of fallen trunks, or running over mossy rocks, or hanging above the head of the admiring traveller, suspended from the gigantic arm of some monarch of the forest, they develope flowers of the gayest colours, and the most varied forms, and they often fill the woods at night with their mild and delicate fragrance. For a long time such plants were thought incapable of being made to submit to the care of the gardener, and Europeans remained almost ignorant of the most curious tribe in the whole vegetable kingdom. But it has been discovered of late years, that by care and perseverance they may be brought to as much perfection in a hot-house as they acquire in their native woods, and they now, under the name *Orchidaceous Epiphytes*, form the pride of the collections of England.

From the above extract our readers will gather that some of the species belonging to this tribe are parasites, or growing on, and deriving nourishment from other vegetables instead of taking root in the soil. Our native parasitical plants will come under review as we proceed.

We have already noticed the Colt's-foot, which sends up its leafless stalks and presents its yellow bloom in March. We may now find a singular-looking member of the same family, having the same habit of blowing before the leaves are developed. This is the Butterbur (*Tussilago petasites*), whose flowers appear during this month, growing upon round, thick, spongy stalks of a whitish colour, having a few scales growing upon them. A spike of pinkish flowers garnishes the top of each stalk, the whole not rising above eight inches in height. When the flowers have died away, the leaves rise, and are recognised by their large size, as well as by their being dark green above, whitish underneath, and standing singly upon their hollowed footstalks of a white, purple, or green hue. The root of this plant is white, long, and creeps under the surface of the ground.

Three species of the "bright-eyed Star of Bethlehem" come into blossom during the month. These belong to the Asphodel tribe, which contains the Onion and Hyacinth families, &c. The yellow, the common, and the drooping Star of Bethlehem, are the species now in flower. The first (*Ornithogalum luteum*) is met with sometimes, but not very frequently, in groves and pastures. It has an angular, two-leaved stem, and the flowers, which are yellow, tipped with green, grow in an umbel, this term being used to express that the flower-stalks, nearly of equal length, diverge from one common centre. The second (*O. umbellatum*) grows in meadows, pastures, and groves, in several parts of England. It never expands its flowers in gloomy weather, and even on bright days does not open till near noon; hence it has been called *Eleven o'clock Lady*. The flowers are white on the upper side, and green on the back, as are those of the next species. The third (*O. nutans*) grows mostly in fields and orchards, and is common in country gardens.

But we must here content ourselves with the brief sketch already given, nor seek to notice the various early flowering grasses, the trees and shrubs now putting forth their small blossoms, nor the remaining plants that might engage our attention.

The gradual unfolding of Spring foliage which occurs towards the end of the month is thus noticed by Bishop Mant:—

> Hail, April! Lo, inspired by thee
> Full many a lovely form I see
> Its long-lost garniture resume
> Of woodland leaf, or woodland bloom.
> No more with tassels here and there
> Besprent, but in a vesture fair
> The Larch to welcome thee is seen,
> Unmingled, of the tenderest green.
> Bright tints to welcome thee, adorn
> Of tenderest green the full-robed Thorn.
> Of broader lobes, and darker grain,
> His leaves for thee the Maple-Plane
> Develops from their crimson sheaths;
> For thee his bright and twisted wreaths
> Five-fingered, like a giant's hand,
> The Chesnut's lengthening shoots expand.
> Forth from his coral's ruby holds
> The Lime his pale green leaf unfolds.
> The Alder through the watery mead;
> About the mountain's rocky head
> The Birch for thee his leaves displays.
> And Elm and spreading Beech arrays,
> To grace thy course a thickening screen;
> This his smooth plates of glossy sheen;
> And, stateliest of the woodland realm,
> His rougher leaves the blossomed Elm.

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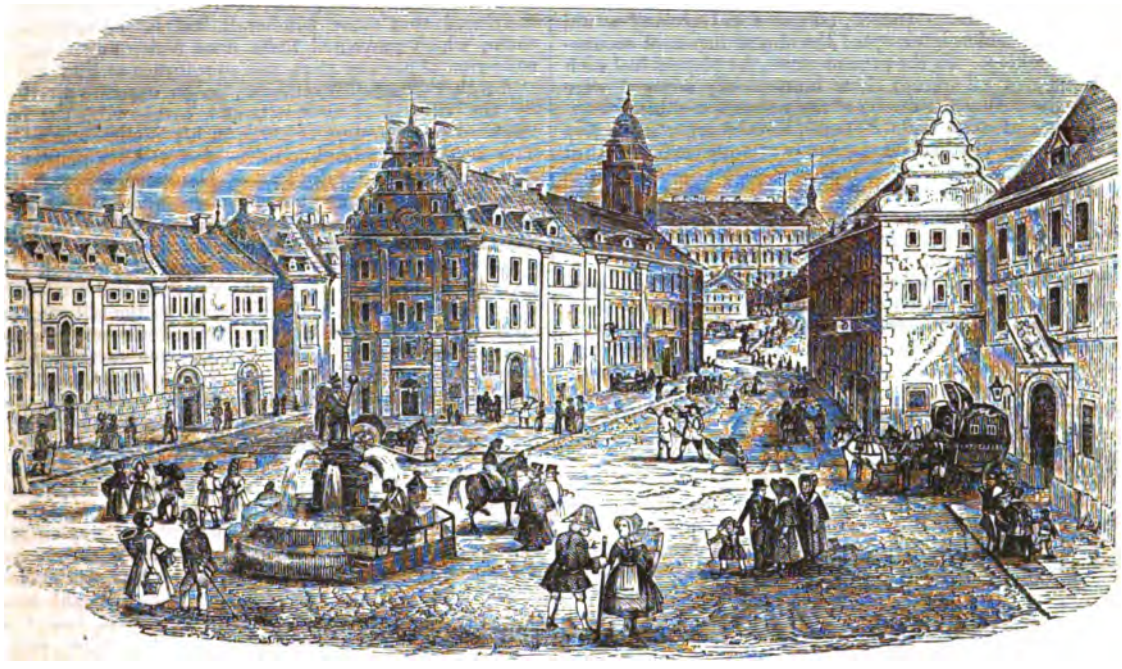
A MONTH IN GERMANY AND HOLLAND.



MARKET-PLACE AND PRINCIPAL STREET OF GOTHA.

III.

SECTION X. A GERMAN SCHOOLMASTER'S HOLIDAY.

THE Teachers of Germany are accustomed to form among themselves associations for mutual instruction, assistance, and amusement. In Dresden there are several such associations. There is one (called "The Pædagogic Union,") for the cultivation of the science of education, in which new publications and new methods of teaching are read and discussed. It also has a charitable object,—that of relieving sick teachers, and providing for the widows and children of their deceased colleagues. It consists of about one hundred and twenty members, who hold general meetings once or twice a month. There are also two choral societies of Teachers, called "The Orpheus," and "The Liedertafel, or Song-Table," consisting of ninety members, and meeting once a week. Thirdly, there is a society, called "The Malwina," (from the title of a book on education, written by one of its most distinguished members,) the object of which is professedly the innocent amusement and recreation of its members, the number of whom amounts to eighty-three. A meeting is held weekly. The amusements of this society are, as may be supposed, various, depending on the season of the year and the state of the weather: but perhaps the most favourite amusement is that known to our ancestors as the "Shooting at the Popinjay," called in Germany, the "Vogelschiessen," or the "Bird-shooting." Having been introduced to the Malwina by one of its members, I was kindly invited to their annual shooting-match, which, from its novelty and interest, deserves to be described with some minuteness, especially as it is the type of one of our own almost obsolete national games, celebrated in the days when the skilful use of that cumbrous instrument, the cross-bow, was a necessary accomplishment.

Such is the fondness for this amusement among the descendants of our Saxon ancestors, that public meetings are held in the vicinity of most towns and villages for its exhibition and enjoyment. In Dresden, a great meeting takes place the first week in August, and after this, when the fruits of the earth are gathered in, the fields are often used for the purpose.

The sport is subject to many variations, but its main features are as follow. A large pole, like an English may-pole, is erected, by being fixed in a sort of box, like the mast of a small vessel, so that it can easily be lowered in order to fix any object to the top, and again elevated. At the top is usually a wooden representation of the Austrian, or two-headed eagle, ornamented with feathers, paint, and copper gilding. It is composed of a number of distinct pieces slightly held together, these pieces being distinguished by appropriate names:—1st, there are two wings, or the wing-boards; a tail with two wooden feathers; 2nd, the neck and the head; 3rd, the trunk; 4th, the jewels. The jewels, or emblems of royalty, include the plume of feathers and the crown on the head, the sceptre and the imperial globe held in the claws.

Sometimes it is a rule that these several parts shall be shot down in a certain order; but this requires skilful marksmen, and is not often accomplished. The body of the bird is firmly screwed to the pole, but when the other parts are shot away, the pole is lowered and the body loosened, so that one decided shot may bring it down: as this body is but a small piece of wood, placed at the distance of fifty or sixty feet from the marksman, and as it presents no projecting portions, such as wings, feathers, &c., for a stray bolt to strike against, it is agreed that the person who brings down the body shall be King, because he has made a royal shot. The person who has shot off the head is considered as the second-best shot.

A cross-bow, somewhat of the form of a musket, is employed to shoot with. It is loaded with a wooden bolt about a foot long, and headed with an iron crown. The cross-bows, &c., are usually lent by the owner, who attends for the purpose of loading them as they are wanted. When

the turn comes to any one to shoot, his name is announced in a loud voice, together with all the titles of the office he holds, however commonplace they may be. He steps forward, receives the loaded cross-bow, poises it upon a sort of wooden music-stand, takes a deliberate aim, and discharges the bolt at the bird. Should the shot be successful, a drum or a tambourine is sounded as well to honour the marksman as to give notice to careless spectators to avoid the heavy fragment which is falling. A boy is employed to collect the bolts as they fall, and to return them to the shed where the apparatus is arranged and charged, and in and about which the marksmen are collected.

This game seems well suited to the quiet and rather indolent habits of the German. It was remarked to me as one of the chief merits of the sport, that "it interests without giving much to do." Indeed, no game in Germany would be in favour which interrupted the almost incessant occupation of smoking. In the present game, the players had each his cigar, and all except those immediately engaged were quietly discussing the merits of the respective shots, excep a few who, at some little distance, were singing some fine national airs. Visitors and spectators of both sexes occupied the ground behind the shed, and were partaking of various simple refreshments; the ladies busy with their knitting, the children playing quietly about, and all more or less occupied in witnessing the skill, or want of skill, of the various cross-bowmen.

A large number of persons can be engaged in one of these shooting-matches. Each person pays beforehand a small sum, commonly eight silver groschen; and the whole sum thus collected is divided into a certain number of parts, one of which is appropriated to the expenses of the entertainment; other parts belong to those marksmen who bring down the most esteemed parts of the bird. A person keeps a sort of register of the sport, into which he enters the successful shots.

The Malwina meeting was held in a public garden near the entrance to a romantic glen, called the Plauensche Ground. The sport was conducted in the manner above described, until the regal shot was fired, which terminated the shooting. The fortunate marksman was then chosen king; a handsome garland was thrown about his body, and, escorted by two friends bearing the mutilated fragments of the eagle, the insignia of his triumph and authority, he headed a procession formed by the whole of the company present. A triumphal chorus was struck up, and in this way the garden was circumambulated three times. A circle was then formed round the pole, and one of the marksmen addressed his majesty in a long serio-comic speech, productive of great merriment: to this the king returned a reply in a similar strain; a chorus was sung to his praise, and then the company formed into small parties, which became gradually thinner and thinner, and before ten o'clock every one was proceeding homeward.

The entrance to the Plauensche Ground, above referred to, is formed by the elevation of some sienite rocks, the rugged forms of which are softened by abundant vegetation, the pine, the beech, and even fruit-trees growing luxuriantly. The ascent to the heights above is somewhat laborious, but the view well repays the toil. The rich melody of a horn band occasionally rouses the slumbering echoes of this retired spot; the effect is then enchanting in the extreme. On proceeding up the glen, and following the track of the small river Weisseritz, which I found in many places completely dried up by the heat and drought, and the water-mills unemployed, the narrow valley opens upon the busy manufacturing village of Potschappel, the coal of which neighbourhood feeds many iron-forges, glass-works, and coke-kilns. A few miles onward, is the little town of Tharand, romantically situated at a point where three charming valleys meet. From the promontory of a rock, a fine view is obtained up the valleys, revealing in some places the bare rock, or in others a rich garment of underwood, or sloping meadows or gardens, while many a little nook affords shelter to the quaint German cottage.

Near the top of this rock are the ruins of an old hunting-seat of the ancestors of the present king of Saxony: and at the top is the Temple of the Sun, so called, because the last rays of the setting luminary seem to linger on this spot. With the assistance of a guide, we visited some of the beautiful walks for which this place is celebrated, the most interesting of which were in the Forstgarten of the Academy of Rural Economy, established here chiefly for the purpose of giving instruction in the forester's art;—in planting and rearing timber, &c. The academy consists of four professors, and two teachers: it has a library, collections in zoology, botany, and mineralogy; models and instruments used in husbandry, a hunting equipage, a small hunting ground, &c. The garden is a remarkable instance of what may be done by science and industry: thirty years ago it was a steep barren rock: it now contains more than a thousand species of trees and shrubs, properly classified and labelled. There is also a fine beech avenue, called the Heilige Hallen, or Holy Halls, connected with which is a remarkably well-told story, in the Peter-Pindaric style, by Roos, of two simple countrymen, who visited the place by moonlight. Expecting to find the large halls in some splendid building, they went about the beech avenue in search of the same, became terribly alarmed, lost their way, and on being assured that they really had been into the holy halls, were convinced that some witchcraft had been practised upon them, which prevented them from seeing any thing but a collection of gloomy trees, and so returned as they went.

Another pleasant excursion, in an opposite direction, is by the villages of Blasewitz and Loschewitz, the former rendered celebrated by Schiller, in his Wallenstein's Camp. The road lies through a ridge of sand-hills, planted with shrubs and vines, by the Earl of Findlater, a Scotch nobleman, who bought some property here, and built a residence on a sort of terrace, commanding a lovely view of Dresden and the Elbe. The house is now converted into a hotel.

After passing a very pleasant week in Dresden, I took leave of the kind friends whose attentions had rendered my sojourn so agreeable, and proceeded by the railway, in an open carriage, to Leipsig. The transit was not altogether without adventures: preferring an open carriage for the sake of the air, the scenery, the diversified company, &c., I became fully impressed with the danger of this class of conveyances. Several persons had minute fragments of coal blown into their eyes, and suffered severely; a few received live coals upon their persons, and were fortunate if they escaped with burnt clothes only. An old lady received one such fiery messenger in her lap, and in an instant it drilled a large hole through her garments. Complaints, and exhibitions of burnt clothes to the servants of the company, produce only a shake of the head: the servants of course can do nothing; the responsibility rests, or ought to rest, with the company, the directors of which, rather than make these conveyances a trifle less hazardous and uncomfortable, by placing a cover over the heads of the passengers, allow persons to be exposed to fearful injury. Another accident was of a far less individual character: into the construction of this line, a large quantity of wood enters; in fact little more is done than to attach the rails to wooden sleepers, which being scarcely, and in many places not at all, covered with earth or gravel, frequently present a charred surface from the effects of the live coals which fall upon them from the engine. On the present occasion, the long heat and drought had so much improved the combustibility of the wood, that to set the line on fire seemed easy. In fact, while we were proceeding at a brisk pace, a portion of the bottom of the furnace gave way, and scattered the burning coals over about a quarter of a mile of the line: instantly an extensive blaze arose, the smoke of which prevented us from seeing the amount of damage, and its progress. The engine came to a stand for want of sufficient fire; officers and attendants were in a great bustle; and after much delay we proceeded without injury to carriages or passengers, but leaving the line still burning.

Section XI.

Leipsig to Wiesbaden.

I was not repaid for the troubles of the railroad by the prospect of a comfortable journey in the Schnellwagen. A middle place in one of the beywagen was assigned to me, and I was left for a time to wander about Leipsig, with the prospect of five or six and forty hours' travelling, before I should again be in the region of railroads and steam-boats. But by facing them boldly, the terrors of the journey disappeared: it is true that we were six inside, and mine was the worst possible place, every attempt at sleep being fairly baffled by the utter want of support to the body; for the moment forgetfulness had stolen upon the senses, the body naturally fell upon the sleeper in the corner, who, resenting the attempt to convert his body into a mattress, would rouse himself and you, and particularly request the favour of your not leaning against him. Under such circumstances, sleep was out of the question. I sought relief in inviting a conversation with my fellow-sufferer on

the opposite side: he was a loquacious Frenchman, had travelled much, and was eloquent on the subject of stage-coaches: like a true Frenchman, he preferred the diligence to every other form of conveyance. The English mail-coach he complained of as being too small, and too rapid, while he deemed it absurd and unsocial, that "the groom," as he called the guard, should have a place all to himself behind. But as darkness came on, cigars ceased to smoke, and tongues to move, and the only prospect before me, was to wait in patience for the morning, and indulge in some of those waking dreams, which the mind can conjure up for our entertainment, when otherwise unemployed.

My journey to Frankfort being as rapid as the nature of the conveyances would allow of, and much of it by night, I could bestow no more than the most casual glance at the places through which we passed, or at which we stopped for refreshment,—a glance sufficient to enable me to bear away a vivid recollection of places long familiar by name, but not sufficient to convey an idea in words. Indeed, no map, nor drawing, and still less a written description, can convey that just notion of the general aspect and position of a place which is afforded even by a hasty inspection.

As morning dawned we entered upon the domain of Saxe Weimar, and some time afterwards stopped at Weimar, the residence of the Grand Duke, to breakfast. It is a dull commonplace-looking town, notwithstanding the presence of a court. It is, however, interesting to the German student as having been the residence of such men as Wieland, Herder, Schiller, Göthe, &c. Some time after quitting Weimar we again entered the dominions of Prussia, and arrived at Erfurt; a gloomy town, strongly fortified. By this time the heat had become intense, and the gathering of dark masses of cloud indicated a storm. Within a few miles of Gotha a vivid flash of lightning spanned the horizon, and as it were broke open the windows of heaven—the first rain that had fallen during eleven weeks refreshed the thirsty earth and parched herbage; brought smiles to the face of the anxious husbandman, and a pleasant sensation of coolness to the traveller, who, in addition to the usual discomforts of the Schnellwagen, had hitherto had to endure a high temperature.

Gotha, the chief town of the duchy of Saxe Cobur,r, is a pleasant, bustling, little place; its suburbs, adorned with many new buildings, invest it with an idea of progress and improvement which satisfies the mind; whereas the gloomy old walled towns lately seen had merely thrown the mind back upon the past, when towns as well as houses were double-locked and barred. At Gotha we enjoyed an excellent dinner at the inn shown at the right-hand corner of the frontispiece, the sign of which is the Giant. On quitting this place, the road, which was frequently lined with fruit-trees exhibiting an abundant crop, conducted us into the beautiful Thuringian forest, upon which the shades of evening were beginning to fall, and prevented the eye from catching more than a few glimpses of loveliness, sufficient however to cause regret at being in the midst of so many natural beauties without sufficient leisure to enjoy them.

On mustering our forces at Eisenach four passengers remained over after the chief wagen was fully equipped, and I was one of the four. To accommodate us with an extra wagen was out of the question: so we were consigned to an old drosky with leathern curtains, every subsequent stage witnessing a change for another of precisely the same ricketty description. To exchange this vehicle every hour or two, and to wait about for ten or fifteen minutes in the middle of a rainy night, when all inns were closed, and ostlers frequently asleep, is one of the contingencies of German travelling when you are not sufficiently fortunate to secure a place in the hauptwagen.

On the second morning after quitting Leipsig we arrived at the ancient imperial free city of Frankfort-on-the-Maine. As the morning advanced the clouds cleared away, and everything seemed to promise a continuation of the fair weather, which had experienced the agreeable interruption of eighteen hours' soft genial rain. Next to Hamburg, Frankfort impresses the stranger with the idea of active bustling trade: its streets more nearly resembled those of an English town than any I had hitherto seen. Like many other fortified places its defensive walls invited attacks which otherwise would probably never have been made; therefore gathering wisdom by experience, the inhabitants have converted the site of the old fortifications into most agreeable gardens and pleasure-grounds, furnished as usual with coffee-houses and bands of music. The old town, included within this belt of gardens, is the Frankfort which belongs to history: its narrow streets, and wooden buildings with overhanging gables, are the common features of a walled town, where the population increasing within an inclosed space must necessarily live in a crowded manner. The new town built beyond the walls, not being constructed with any such limitations, forms a very handsome collection of houses, those occupied by the merchants and bankers being on a magnificent scale. Some of the public buildings are of greater historical than architectural interest. Within the cathedral, which belongs to the thirteenth and fourteenth centuries, the coronations of the Emperors of Germany were solemnized. In the Römer, or Town-house, the emperors were elected. The Saalhof partly occupies the site of the palace of the Carlovingian emperors, and includes the chapel of the original edifice, probably the oldest building in Frankfort. In the Judengasse, or Jews' Street, the Monmouth Street of Frankfort, a house is pointed out as that in which the Rothschilds were born.

A railroad unites Frankfort with Mayence and Wiesbaden. While waiting in the passengers' room, I observed a notice printed in German, French, and English, which I took the liberty of copying as a specimen of German English: "Convenient coaches expect the arrival of the steam-boats at the landing-place of Metz to forward the strangers with their luggage to the Taunus railway at Cassel. These very coaches will stay also on the railroad at Cassel to promote the Travellers to the Stadt Berlin Hotel, and Post-house at Mainz*."

The distance from Frankfort to Wiesbaden is traversed in about a quarter of an hour; but even on so short a line the luggage of every passenger is scrupulously weighed; the overweight charged, a receipt containing numbers for each package given to the passenger, and corresponding numbers pasted upon the luggage. When the passengers are numerous there is generally a scramble to get the luggage weighed; the weakest are pushed aside, and by dint of much bawling and agitation places are occupied, and the train is off before all the weighing is concluded.

The road becomes at every mile more and more interesting: the first glance at the Rhine causes the pulse to throb quicker, while fancy is busy in recounting some of the beautiful things that have been said and sung, descriptive, or in praise, of this classic stream.

The first impression of Wiesbaden is by no means favourable, nor does it improve on a nearer acquaintance. It presents a marked contrast to Frankfort. In that city of trade it is pleasant to walk, and to see others walk, with the elastic step of a person who is accustomed to a life of activity; but at Wiesbaden one fears to do more than saunter, lest one should disturb the air of listless inactivity which everywhere reigns. Every house is a hotel, and presents a clean whitewashed front, conveying the idea that the whole town had been newly built on a uniform plan,—or, that the inhabitants employed the winter in cleaning and polishing preparatory to the sunshiny season, when the moths and butterflies of fashion would revisit the place. Every hotel occupies a large extent of ground, for the sake of the numerous baths pertaining to each, but the height of each house is inconsiderable.

Wiesbaden is the capital of the Duchy of Nassau; the residence of the duke and the seat of his government; but the attraction of the place is to be found in its baths and mineral waters. The Kochbrunnen, or boiling spring, has the appearance of a cauldron of boiling water: it is the source which supplies the numerous baths of the town, and so copious is the supply that a vast quantity of the hot water escapes, and often fills the streets with vapour. The waste waters serve as a sort of stew for carp, which grow in them to a large size: the waters are then discharged into the Rhine, and by their warmth prevent the congelation o. that part of the river into which they flow. There are fifteen hot springs in the town, all probably derived from one source. The temperature of the principal spring is 156° Fahrenheit.

After so much fatiguing travelling I was glad to indulge in the luxury of a warm bath. The appearance of the water, however, is by no means inviting: the surface is covered with a greasy film which collects into small disks, and increases as the temperature declines: its appearance and taste (for I had the curiosity to taste it) have been very aptly compared to weak chicken-broth; this appearance, however, is said to be an accurate test that the water has been derived fresh from the fountain-head.

* The German word for Mayence.

Section XII. The Rhine.

An omnibus conveys the Rhine tourist from Wiesbaden to Biberich, a small place on the Rhine at the limits of the Duchy of Nassau. It contains the handsome palace of the duke facing the river. On the opposite bank, a little to the left, appear the red towers of Mayence, surrounded by fortifications, and united by a bridge of boats with the fortified suburb of Cassel, on the opposite side.

When I got on board the steam-boat, a mist was hanging over the water as if it were a curtain let down to conceal the beauties which reposed beyond it, and about to be drawn up when the grand exhibition we were now entering upon was commenced. A few light showers were all that fell from the skirts of the late storm, and these were just sufficient to cool the air, and break up the clouds: as the morning advanced the sun shone with his usual splendour.

We had not yet reached the most picturesque portion of the Rhine, which commences a little lower down, and which, as far as within twenty miles of Cologne, presents that wondrous succession of varied beauty which has won for this river so much admiration. The traveller, therefore, who has little time to spare, and wishes to catch a glimpse of this enchanting scenery, may obtain it from the steam-boat, but he will probably experience a slight feeling of disappointment, as I did, for want of a more leisurely inspection than the steamer affords; much of the most lovely scenery lying behind the rocks which bound the river. Provisions are supplied on board; breakfast is served to the passengers separately, but there is a general réunion at dinner at about two o'clock under an awning, and the traveller may taste the wines from the celebrated vineyards which come in succession under his notice. If he read German, he will do well to procure Klein's or Schreiber's *Rheinreise*, so that what he sees may be invested with the additional interest of being understood: for this purpose, also, Mr. Murray's *Hand-book* will prove a delightful companion.

Biberich is part of the Rheingau, or valley of the Rhine, situated between the Taunus hills and the river, and extending as far as Lorch. From its peculiar situation the rays of the mid-day sun fall directly upon it, a circumstance which has acquired so much celebrity for its vineyards: its beauties are of a softer kind than those of the district we were approaching; and it was pleasant to look upon Erbach, with its Steinberg vineyard, Johannisberg, Rüdesheim, and other vineyards, the names of whose wines are familiar everywhere. As we approached Bingen, the ruined walls of Ehrenfels, an ancient stronghold of the archbishops of Mayence, reminded us that we were approaching that part of the stream so truly called "the castellated Rhine." From Bingen to Boppart the river crosses a chain of mountains which are nearly at right angles with the course of the stream, and at a remote period, as is supposed, stopped its further progress by damming up the waters behind them into a lake which extended as far as Basle. In the valley of the Rhine, above Mayence, geological proofs of the existence of this lake occur in the form of fresh water deposits, shells, &c. The force of the accumulated waters probably burst through this mountain barrier, and opened for the river the gorge by which it now obtains a free passage to the sea. From this point as far as Coblentz, the river loses its smiling, cheerful features: "the dark shadows of the mountains, the numerous feudal castles in ruins, frowning upon vaulted and turreted towns, are the prominent features of its unrivalled scenery, the effect of which is heightened by historical associations, and the charms of romance and chivalry." Among these castles one is particularly interesting, viz., the castle of Rheinstein, or Vautsberg, which is fitted up after the manner of a knightly dwelling in the middle ages; the walls, it is said, are hung with armour, the windows are of stained glass, and the furniture the same as was in common use in the castles of the olden time. Opposite to this is the village of Assmanshausen, celebrated for its red wine, which is grown on hills so steep that in order to retain the soil about the roots, the vines are frequently planted in baskets, and the vine-dressers must scale precipices nearly a thousand feet in height. The vineyards are, in fact, a succession of terraces, supported by walls of masonry from five to ten feet in height. From this point of the river the number of dismantled and dilapidated fortresses becomes so great that it is difficult even to count them. Falkenberg, Reichenstein, and Rheinstein, (the residences of the knightly robbers of a dark and unsettled age,) form a picturesque group: the old town of Lorch is remarkable for its church, which dates so early as the ninth century. The round tower and shattered walls of Furstenburg, the ruined castle of Nollengen, the old town of Bacharach, with its old picturesque walls and towers, the latter of which are of singular construction, each tower consisting of only three walls, the side towards the town being open, the intention being probably to prevent the command of the town by an enemy who should gain possession of them. The name of this town is derived from that of a rock in the bed of the river, viz., *Bacchi ara*, the altar of Bacchus, which is usually covered with water, but in very fine seasons appears above the surface, and is hailed as an emblem of a good vintage. In the midst of the river, opposite Caub, there is a quaint old castle called the Pfalz, formerly a toll-house, and accessible only by means of a ladder. Caub is remarkable as the spot where Blucher crossed the Rhine with his army on the night of the new year 1814. Above Caub is the ruined Gutenfels, said to be named after a lady called Guda; the castle of Schönberg, or the Beautiful Hill; the picturesque town of Oberwesel, and the remarkable echo of Lurley, whose fifteen-tongued voice is excited by a man stationed at the base of the perpendicular precipice close to the water's edge, whose duty it is to fire two small cannon and blow a blast on the bugle, for the amusement of the steam-boat passengers. This echo is made to subserve a common joke practised by the German students, who inquire of the echo "Who is the Burgomaster of Oberwesel?" to which the echo, replies "Esel," the German for "donkey."

We soon arrive at St. Goar, which is situated in the very midst of the glories of the Rhine. Here we see the magnificent fortress of Rheinfels, destroyed by the French revolutionary army in 1794, and now the most extensive ruin on the Rhine. Lower down are the ruined castles of Sternberg and Liebenstein, or the Brothers, connected with which is a melancholy history, very prettily told in Klein's *Rheinreise*. Boppart, once an imperial city, but now famous for its cherry orchard, and the vast convent of Marienburg, which serves as head-quarters for the Kalt wasser Kur—cold water cure. Braubach, situated at the foot of a high and almost conical rock, surmounted by the imposing castle of Marksburg, the only one on the Rhine which has been preserved uninjured and unaltered. It is described as a perfect specimen of a strong-hold of the middle ages. "It is indeed the beau ideal of an old castle, with mysterious narrow passages, winding stairs, vaults hewn in the living rock, which served in former days as dungeons, and above all, a chamber of torture, where the rack still exists, as well as the instruments with which offenders were executed by strangling. A secret passage is said to pass down through the rock to a tower on the borders of the river." This place is still used as a prison for political offenders, and is readily shown to strangers.

Stolzenfels, or the Proud Rock, so called from its bold commanding situation, is among the largest and most imposing feudal ruins on the Rhine. A few years ago it was presented by the town of Coblentz to the crown-prince of Prussia, who has devoted a certain annual sum to its restoration, with the intention of restoring it to its pristine splendour.

The town of Coblentz is beautifully situated, and surrounded by a numerous assemblage of objects of historical and picturesque interest, which we have not space here to enumerate. The most interesting object is the fortress of Ehrenbreitstein, (Honour's Broad Stone,) connected with Coblentz by a bridge of boats: it has been restored by the Prussians, and now ranks as the Gibraltar of the Rhine: its heights command a glorious view of the junction of the Rhine and the Moselle.

From Coblentz to Andernach, the banks of the Rhine are flat, and comparatively uninteresting; but at the latter place, the rocks form a majestic defile, and the eye is busy in catching a glance at many interesting towns and castles in this shifting panorama. The village of Brohl furnishes a stone, which, when reduced to powder, is called *trass*, and possesses the valuable property of hardening under water. It is in great request among the Dutch, large quantities of it being employed in the formation of their dykes. Further on is the castle of Reineck, which comprises an ancient watch-tower, and a modern castellated residence. Opposite the ancient fortified town of Linz, the river Ahr flows into the Rhine; then follows Remagen, opposite to which, to the height of seven hundred feet, rise some abrupt precipices, converted into a productive vineyard, by planting vines in

baskets, and inserting them in the crevices of the basalt. From the wooded height of Apollinarisberg, we see the white walls of a convent. Near Unkel is a hill of basalt, the columns of which partially obstruct the bed of the river; the stone is largely quarried for roads and pavements. The castle of Rolandseck, and the island of Nonnenwerth, are interesting for the story connected with them, which suggested to Schiller one of his most beautiful ballads, "The Knight of Toggenberg." We now come to the Siebengebirge, or Seven Mountains, which form an appropriate conclusion to the grand and beautiful scenery of this river: they are the loftiest and most rugged on its banks, the seven principal summits (which give a name to the group) being more than a thousand feet in height, and all of volcanic origin: they are for the most part crowned with some ruined castle, or chapel; but the most interesting of the whole is the Drachenfels, or Dragon Rock, concerning which the poet sings so sweetly:—

The castled crag of Drachenfels
Frowns o'er the wide and winding Rhine,
Whose breast of waters broadly swells
Between the banks which bear the vine,
And hills all rich with blossom'd trees,
And fields which promise corn and wine,
And scattered cities crowning these,
Whose far white walls along them shine,
Have strew'd a scene, which I could see
With double joy, wert thou with me.

Passing by the charming village of Godesberg, we reach the town of Bonn, so justly distinguished for its university, and the number of eminent professors who have occupied chairs therein. At this place the peculiar beauties of the Rhine may be said to have ceased, and as far as Holland, present a flat uninteresting character.

After a day of peculiar enjoyment, we arrived in the evening at Cologne, celebrated for its cathedral, for the fragrant water which bears its name, and, it must be added, for its inodorous streets. I found the city crowded, and a general movement pervading it, on account of the expected visit from the King of Prussia, who was to arrive the next morning, preparatory to laying the first stone of the new buildings, projected for the completion of the cathedral. The large hotels were all crowded with guests, and I had some difficulty in procuring a lodging. The evening being fine and warm, I took advantage of the hour's daylight that remained, to see something of the town; but I found the streets so narrow and complicated, that I soon lost my points of bearing, and was glad to avail myself of a youthful and intelligent-looking guide, who proffered his services. The grand object of attraction was of course, the cathedral, so justly styled by Mr. Whewell, "the unrivalled glory of buildings of this class; the most splendid, and perhaps the earliest exhibition of the beauties of this style." The reader is probably aware that although begun in 1248, this building was never finished, but has remained a mere fragment, the choir being the only part completed. Its height is one hundred and eighty feet, and internally, as Mr. Hope remarks, from the size, height, and disposition of pillars, arches, chapels and beautifully coloured windows, it resembles a splendid vision. "Externally, its double range of stupendous flying buttresses, and intervening piers, bristling with a forest of purfled pinnacles, strike the beholder with astonishment. If completed, this would have been the most regular and most stupendous Gothic monument existing;" or as another writer remarks, "the St. Peter's of Gothic architecture." The entire length of the body of the church is four hundred feet: its breadth is one hundred and sixty-one: the two principal towers were to have been raised to the height of five hundred feet; that which is most finished, is not above one third of that height, and contains on its top the ancient iron crane, employed by the masons to raise the stones for the building; it has remained in this position for centuries, and when I saw it, its highest point was crowned with an admirably carved colossal Prussian eagle, with expanded wings, visible for many miles round, and appearing as a sort of pledge, that under the patronage of the King of Prussia, aided by contributions from a great part of Europe, this wonderful building will be at length completed. Should the funds be forthcoming, it is calculated by M. Zwirner, the architect, that it will cost thirty years of labour, and the sum of 720,000*l*. To welcome the royal patron, the cathedral was decked out with long gaudy flags, bearing Latin inscriptions: the narrow streets were made to look as gay as possible, and every vacant space about the cathedral, occupied with raised benches for spectators.

Cologne is essentially a classic city,—it is the *Colonia Agrippina* of the Romans,—many of its streets bear Roman names, and its soil contains numerous relics of its earliest founders, some of which, in the form of busts, statues, stones, bearing the numbers of the legions stationed here, are deposited in the Museum. It is pleasing to witness the care bestowed on antiquities in Germany, and the interest they excite among the German people. Nor less praiseworthy is the mode of classification: thus, at Berlin there are separate museums for painting, sculpture, Egyptian antiquities, and national antiquities,—in all of which the objects seem to be arranged with the particular view of illustrating the history and progress of art and science and civilization. The museum for national antiquities is peculiarly interesting: it contains the old weapons, ornaments, utensils, &c., of the aborigines of the Prussian soil. It is a pity that no similar institution exists in England. Many an old barrow and tumulus has revealed its valuable secrets to private collectors, but the great mass of the people know nothing about them. These things deserve to rank higher than objects of mere curiosity: they are witnesses of the past—true illustrations of the history of civilization, and, when properly arranged and understood, of far greater value than the productions of the pencil and the pen, and as such ought to be preserved among our national treasures.

Three eras have fallen upon Cologne: the first we have noticed; the second refers to a time when, as the chief town of the powerful Hanseatic league, it boasted the title of the "Rome of the North," and was, in fact, the chief seat of wealth, commerce, art, science, and literature on this side the Alps; and at the time when its university was the most famous in Germany, well did Petrarch exclaim, "How glorious is this city!"

But Cologne ceased to be glorious when, during the third era, she became celebrated for monks, and osseous relics, and intolerance, and could boast that she contained as many steeples as days in the year. Discords between the dominant ecclesiastical party and the civilian; the expulsion of the protestants, by which act alone nearly fifteen hundred of the chief houses in the city became tenantless the rising up of other important marts of the Rhenish trade—all contributed to the decline of Cologne: and at length the shrines of St. Ursula, and her eleven thousand virgins; the shrine of the three Magi exhibiting three ghastly skulls crowned with diadems; these and numerous other relics ceased to attract pilgrims.

After walking about the city for a few hours I returned to my inn, first paying a visit to one of the twenty-four manufacturers of the celebrated eau de Cologne, each of which professes to be the sole possessor of the secret process for producing the genuine article.

On entering my hotel, I was presented, as usual, with the book, into which every stranger is required by law to enter in columns ruled for the purpose, his name and profession, whence he comes, whither he goes, where he dwells, how he came, whether by the post or otherwise, on what business he travels, the date of his arrival, how long he intends to remain, and the number of his servants.

From Cologne to England there are two principal routes: one is to proceed to Aix la Chapelle, and thence by railroad to Antwerp or Ostend; the other is to follow the course of the Rhine to Holland, and thence proceed by steam from Rotterdam. The first route is the shortest and most frequented, but being curious to see something of Holland, I determined to reserve for some future occasion a visit to Belgium and the Netherlands, and proceed home by Holland.

There are two or three companies that work the passage between Cologne and Rotterdam; by the new boats it is done in about thirty hours, but the boats of the old company require nearly forty. It was my fate to embark in one of the slowest boats, a sort of aquatic Schnell post, with similar sleeping accomodation, *i. e.*, a corner of a small cabin. The hour fixed for departure was half-past nine, but I had to wait about half-an-hour, during which time I was pleasantly occupied on the quay, watching the traffic along the bridge of boats which connects Cologne with the fortress and suburb of Deutz, on the opposite bank. The morning was beautiful, the passengers were few, and we soon lost sight of the numerous towers and spires of Cologne, and were far away from the scenes of animation and beauty which during the whole of the previous day had kept the attention almost painfully alive. By degrees the scenery became

more and more flat, uninviting, and Dutch; but, lighted up as it was by the bright sunshine, it had its peculiar quiet beauties which soothed if they did not satisfy the mind. Our steamer stopped at every station to exchange passengers, and the mixture of characters became greater as we advanced; occasionally a large party of holiday folks bent on an excursion to some village wake; or a party of peasants with wives and children on an agricultural tour; traders with their cargoes, and occasionally a traveller on a more extended route;—all this gave animation and variety, and kept the attention from straying to the dull osier beds which lined both banks of the river.

The river winds so much that the distance from Cologne to Dusseldorf is about one-fourth greater by water than by land. Dusseldorf, the capital of the Duchy of Berg, is situated on the right bank of the Rhine, which is here about 1200 feet broad, and crossed by a flying bridge. This place was once celebrated for a picture-gallery, now removed to Munich; and oddly enough, since that event Dusseldorf has become the seat of a school of painting, founded in 1828, by Cornelius.

At Ruhrort the Ruhr opens into the Rhine, and serves as a depôt for the coals brought down the Ruhr from the coal-fields on its banks, and from which Holland now obtains the supply which a few years ago she procured from Liege. About three million tons are said to be extracted annually from this place.

At Wesel the Rhine is divided into two branches by the island of Büderich. Wesel is a fortress of the first class, and forms the bulwark of Prussia on its north-west frontier. Opposite this place is Fort Blucher, formerly called Fort Napoleon, when it was in the possession of the French. Emmerich is the last Prussian town, and here the steamer is visited by the custom-house officers; the baggage slightly inspected, and passports *visé*. Lower down we come to Lobith, which marks the frontier of Holland and Prussia.

Section XIII. Holland.

To men of other minds my fancy flies,
Embosomed in the deep where Holland lies.
Methinks her patient sons before me stand,
Where the broad ocean leans against the land,
And sedulous to stop the coming tide,
Lift the tall rampire's artificial pride.
Onward methinks, and diligently slow,
The firm, connected bulwark seems to grow;
Spreads its long arms amidst the watery roar,
Scoops out an empire and usurps the shore;
While the pent ocean, rising o'er the pile,
Sees an amphibious world beneath him smile;
The slow canals, the yellow blossomed vale,
The willow-tufted bank, the gliding sail,
The crowded mart, the cultivated plain,
A new creation rescued from his reign.—Goldsmith.

The traveller soon becomes aware that he is in Holland by the flatness of the land, and on so beautiful an evening as that on which I visited it, by the quiet Cuyp-like tone which pervades the scenery: the villages, farm-houses, and church-steeples variegated with the bright colours which Mynheer delights in, when backed by the golden light of the setting sun, relieved the low dark outline of the land, and realised many a Dutch picture; so that I almost doubted whether I had not been acquainted with these very shores and flats from my earliest youth. The Dutchmen too on board the steamer, or busy with their cargoes on the quays of the little towns at which we stopped, were all old acquaintances; for Teniers had taken their likenesses, or the likenesses of their great-grandfathers, which is much the same thing, among a people who change so little. I could have shaken hands with many a boor and a frow, and reminded them that I had seen them at some village wake, or public-house interior, in the Dulwich Gallery, or at the Dresden Gallery, or at some print-shop, or somewhere: but though I seemed well acquainted with them all, my recognitions were silent, because I could not speak Dutch. I was also attracted by the sight of the aquatic works which the poet quoted above described so well, and could not but admire the "diligently slow" pains which had been so evidently bestowed to preserve every inch of ground from the dominion of the waters. At that point of the river where the Rhine separates into the Waal and the Lek numerous hydraulic works are erected. "They consist of dams, dykes, and jetties, constructed of earth, and faced with wicker-work, which are thrown up along the shore or into the Rhine, to regulate its course, and the direction of its waters, the object in view being so to distribute its current, that in all states of its flood, both when high and when low, two-thirds of the water which it brings down may be conveyed into the Waal, and only one-third into the Lek. It is the duty, therefore, of the water engineers to watch every variation of the current and level of the Rhine, and to guard against changes, and preserve the equilibrium, by constantly throwing out new works. These constructions are of the highest importance; since, in point of fact, the physical existence of Holland in a great degree depends on them; and had not the necessary precautions been taken to strengthen them in 1774, the country would in all probability have been overwhelmed by the inundations which occurred in 1784. At a place called Aart, a dam is drawn across an ancient arm of the Rhine, strengthened by the Dutch with thick plantations of willows. It is intended that this abandoned channel should serve as a safety-valve in case of very great increase in the waters of the Rhine; and by a convention with the Prussian government, it is settled that when the water of the Rhine attains a certain height at the gauge at Arnhem, they shall be allowed an outlet through this dam. This is by no means an impossible contingency; and were it to happen, the dam would be washed away in five minutes after the water had begun to flow over it, and a new passage would be opened for the Rhine to the sea."

At Lobith the Dutch officers came on board to fasten down the hold, in which were déposited such goods as were merely *in transitu* from one steamer to another, and not allowed to land in the possession of the owners without paying duty. By the advice of the captain I had a large package of German books thus secured, for which protection I paid a small sum instead of a heavy duty which would otherwise have been levied at Rotterdam.

As night advanced, a cold drizzling rain compelled the passengers to seek refuge in the small cabin. When tea and supper were fairly over, and night-caps of various descriptions distributed among the guests, the low bench round the cabin was completely occupied: those who could sleep did so; those who could not tried a variety of postures, looked wistfully at the four comfortable corners occupied by envied sleepers:—some had slid down upon the floor; others found a hard pillow by leaning forward on the table before them; and those who still kept awake had an opportunity by the faint gleams of a lamp to study this odd and not over cheerful grouping. One of my companions not being able to sleep went on deck and resigned his place to me: I thus got a place for my head, and with my great-coat for a pillow, I managed to sleep away the most dreary portion of the night. Early in the morning, an hour before daybreak, I went on deck, a moist fog rested sluggishly on the water, and rendered the shore barely visible. At this time an incident occurred which animated every one. A poor Dutch family on board, consisting of a man, his wife, and four children, suddenly proclaimed that the eldest boy had fallen overboard during the night and was lost. *A man overboard* is a startling subject on every kind of water, and in every description of craft,—and we were all busy with inquiries as to when and where, and by whom he was last seen: search was made in every corner of the vessel, but all to no purpose,—the boy was certainly drowned, and there was no help for it; the father seemed to receive the condolence of the passengers with characteristic Dutch phlegm; he lit his pipe and received in silent resignation a long and apparently angry discourse from his wife:—we were all very sorry for him and for her, when lo! the black tarpaulin, which covered a large collection of goods on deck, was seen to move, and from under one of its folds a large round sleepy face appeared, and crawling forth, with a yawn and a stretch, the object of our solicitude stood before us. The parents expressed their joy in rather an odd manner,—the mother scolded, the father quietly put down his pipe, and began to cuff the boy rudely; and but for the interference of some of the passengers he would probably have received a sound thrashing for venturing, as it appeared without leave, to sleep in certainly what seemed to be the most comfortable part of the vessel.

We arrived at Nymegen, an old frontier town of Holland; its quay was a scene of great bustle,—the town, the shops, the people, and the weather, all wore a Dutch aspect. Presently the island of Bommel is seen, where the Waal and the Meuse unite; we obtained a very good view of the old castle of Louvestein, interesting as the place of confinement of the celebrated Grotius in 1619, and from which he escaped concealed in a box which was generally used to bring him his books. About noon we arrived at Dort, or Dortrecht, the birth-place of Cuyp, of the brothers De Witt, Vossius, and others. It is one of the oldest towns in Holland, and has

a considerable trade. "It stands on an island formed by a terrible inundation in 1421, when the tide on the estuary of the Rhine, excited by a violent tempest, burst through a dyke, overwhelming a populous and productive district, which it at once converted into a waste of waters, called the Bies Boech (*i. e.*, rushwood, from *bies*, rush, whence the English besom), part of which still exists. Seventy-two villages, and 100,000 human beings were swallowed up by the waves. Thirty-five of the villages were irretrievably lost, so that no vestige even of the ruins could afterwards be discovered. The only relic preserved from the waters is a solitary tower called the house of Merwede. By this inundation the number of the mouths of the Rhine was increased, and the Waal was made double its former size."

After leaving Dort, the number of windmills greatly increased, and thus added another characteristic feature to this singular country. The reader will form but a poor idea of them if he call to mind the windmills of our country. In Holland they are of enormous size; a single sail is often one hundred and twenty feet long; they are substantially built of brick, and frequently contain abundant accommodation for dwelling-house, warehouses, &c.; they are made to serve many of the purposes to which we apply the steam-engine; they saw timber, crush rape-seeds for oil, grind snuff, beat hemp, &c., but they are chiefly useful in Holland, where a fall of water cannot be obtained, in imparting motion to water-wheels, which act as pumps, and by constantly raising the water into the canals, keep the low land dry, and fit for cultivation and habitation.

At a turn of the river, Rotterdam comes suddenly into view. The steamer lands its passengers on the Boompjes, a fine quay extending above a mile along the river Maas, which is here so deep that the largest merchant-vessels anchor close alongside the quay. It contains a handsome row of houses, among which are the principal hotels, and is planted with a line of elms from which its name is derived, Boompjes, or little trees, a true appellation at the time they were planted in 1615, but no longer applicable, since they are remarkably tall and vigorous. Though on a much larger scale, this quay bears some resemblance to the Cheyney Walk at Chelsea, and affords a favourite promenade to the inhabitants.

The steamer landed us almost at the door of our hotel; our luggage was moved in a truck from the boat to the door, and I was scarcely in my room when two Dutch porters appeared with my hat-box and portmanteau; they waited to be paid, and I gave them a sum for which a German porter on a similar service would have returned me hearty thanks, and a look of gladness; but, to my surprise, these men advanced into the room muttering discontent. I refused to increase the amount, but they continued to growl Dutch at me, and I understood not a word. Suddenly one of the men, holding up one finger, called out, "franc," "franc;" and the other exclaimed, "tin-pins," "tin-pins," (anglice, ten-pence.) I replied in English, French, and German, that I would refer to the landlord, and pay whatever he said was right, and was on the point of ringing the bell to get the waiter to settle the altercation, when probably perceiving my intention, the men departed, slamming the door after them; this caused a placard which was hanging behind the door to start forward with a noise, and being in appearance something like the list of prices, which in Germany every inn-keeper is obliged by law to suspend in every room, I proceeded to examine it, and found it to be an address in four languages, from the landlord to his most respectable guests, requesting them to pay nothing to porters for carrying luggage either to or from the hotel, inasmuch as the said guests would find it all charged to them in the bill.

I was more interested and amused with the streets of Rotterdam than with any other place I had visited. A very wide straight canal occupies the centre of nearly every street, and this is crowded with shipping of every size and form; the whole length, on each side, is occupied by noble trees, between which and the canal is a quay for landing goods, and within the trees is the paved street; next to this is the foot-path paved with bricks set edgewise. The houses are large, lofty, and substantial, and resemble those of some of the quiet streets of London, which were built about the reign of Charles II. or Queen Anne. The canals are crossed by numerous draw-bridges, or a ferry, and the mixture of shipping, trees, houses, bridges, churches, and a busy population, has a very novel and picturesque effect. Nearly every house, and very often every floor, is furnished with mirrors projecting between the windows; each mirror consists of two pieces of glass placed at an angle of 45°, one reflecting up, and the other down, the street; so that a person sitting in the room can see what is going on without being seen. It has been proposed to introduce these mirrors into England under the name of *dunnerscopes*.

I attended an evening service in the great church of St. Lawrence, celebrated for its organ, which is said to be of superior size and tone to that of Haarlem, the largest metal pipe being seventeen inches in diameter, and the number of stops 5084. After the service of the church has commenced, the inner doors (which are latticed or grated) are locked, so that any one coming late cannot pass the vestibule; but he can hear, and see, and is furnished with a seat; a person already in the church, is, however, allowed to pass out. During the service a collection was made by six well-dressed men, each furnished with a cap fixed to the end of a very long pole, after the fashion of an angler's landing-net; to the tassel of the cap was hung a little bell; and in this way alms were fished from the whole congregation, the gingling supplinnt being thrust everywhere, and everybody seemed to contribute something. As each cap became too heavy to be moved about with ease, its contents were poured into a large bag. About half an hour was occupied in making this collection; and the noise, the rattle, and disturbance occasioned by it, reminded me rather of the house of the money-changers than a Christian temple. Another peculiarity was in the mode of lighting the pulpit: a bright lamp, inclosed within a ground glass shade, was let into the sounding-board, and threw a good light upon the preacher, productive of a very agreeable effect, especially as the object illuminated had a graceful gesticulation.

Every stranger is curious to see the bronze statue of Erasmus: it stands on a wide bridge over a canal, and represents the great man looking intently on a book which he holds with both hands. In one of the neighbouring streets is a small house containing, in a niche between two windows, a small statue of Erasmus, with the inscription, *Hæc est parva domus, magnus quâ natus Erasmus.*

An omnibus passes between Rotterdam and the Hague several times a day: the road is excellent, being for the most part paved with bricks set on end. It passes through Delft, celebrated for its pottery, and reveals a large number of villas, country seats, gardens, and summer-houses. The gardens are exceedingly fine, the trees are cut into all sorts of grotesque forms, the flowers are of the brightest hue, large china jars, large iron gates, and a pond or canal of stagnant water, over which the wooden summer-house is erected, are features to be traced in all of them. But a garden, a fish-pond, and a summer-house are the rural delights of a Dutchman: every house has its motto such as "Pleasure and ease," "Well-contented," "My desire is to satisfy," "Not so bad," and many others. These houses are gaily painted, and although we may smile at the taste, yet there is an air of comfort and content about all of them; they cannot boast of picturesque prospects, yet they can look out upon rich verdant meadows, in which the very handsome black and white speckled cattle seem, like their owners, to enjoy the good things of life.

The Hague is a larger and more courtly town than Rotterdam; the canals are smaller, and serve only as part of the general highway for barges, and hence do not traverse every street. There are many fine open squares, and the same love for trees everywhere abounds. There is a handsome park, somewhat resembling Kensington Gardens; and many of the public buildings are much in the brick-and-mortar style of Kensington Palace. A number of the shops are devoted to the sale of gingerbread. It is sold in the form of large flat bricks, frequently adorned with ornaments in white sugar, with the favourite motto "Forget me not:" a cake of gingerbread forms a substantial, but certainly what appeared to me an odd and clumsy, love-token.

A number of tame storks are seen in the fish-market, where a small house is kept for their shelter. The reason why they are thus taken care of is, that the city arms of the Hague are a stork: but throughout Holland this bird is regarded with a sort of veneration; a cart wheel, or some similar object, is often attached to the house-top for these birds to build their huge nest in; and so numerous are these constructions that they often form a feature in the landscape. To kill or molest one of these birds would be regarded as a crime; and the same love to the feathered tribe extends to singing-birds, which are protected by local laws by which bird-nesting is punishable.

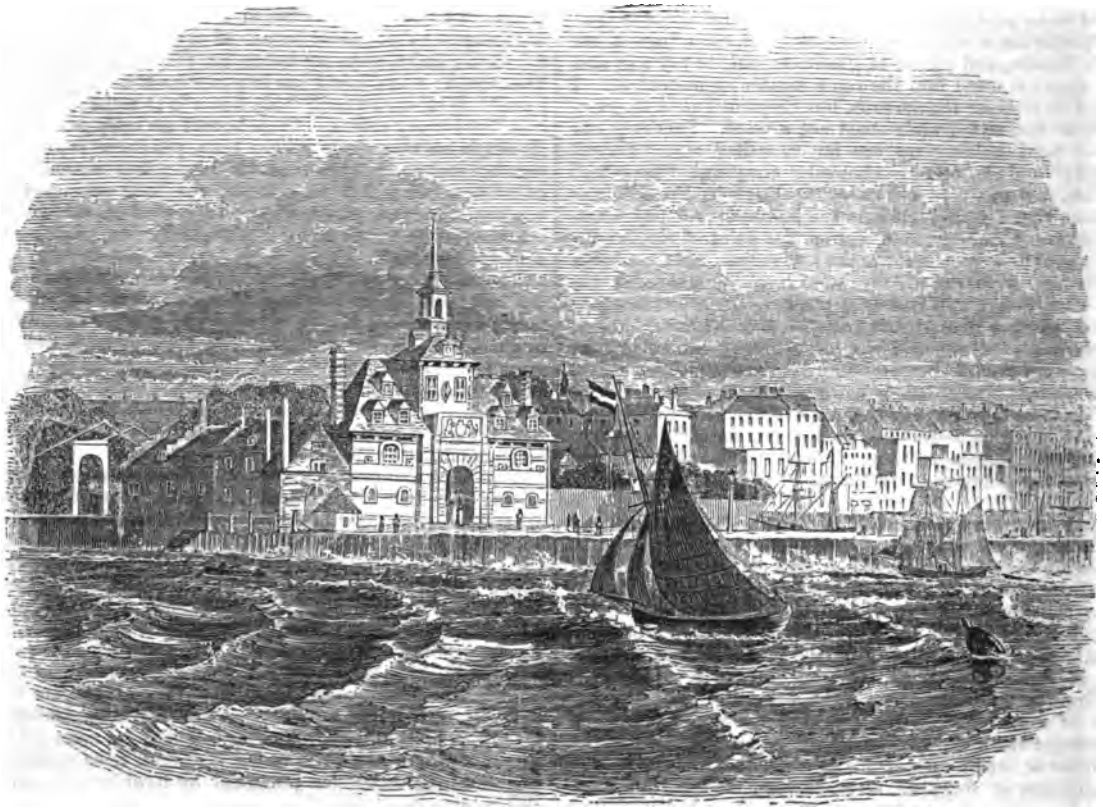
I passed the greater part of my time in the picture-gallery and museum. The former, as may be supposed, is particu-

larly rich in the works of the Dutch school. My limits do not allow me to notice more than two; the first is Paul Potter's young bull, as large as life. This is the masterpiece of the artist, and has been valued at 5000*l*. It was taken to Paris by the French, although the Dutch, it is said, offered Napoleon a sum equal to four times its value to allow it to remain at the Hague. The picture which most attracted my notice was a wonderful production by Rembrandt. The subject is an unpleasant one, but the conception and execution place it in the highest rank among this artist's productions. The picture represents the dissection of a dead body by Professor Tulp, attended by his pupils. Sir Joshua Reynolds describes it thus:—"To avoid making it an object disagreeable to look at, the figure is but just cut at the wrist. There are seven other portraits, coloured like nature itself, fresh and highly finished: one of the figures behind has a paper in his hand on which are written the names of the rest. Rembrandt has also added his own name, with the date, 1672. The dead body is perfectly well drawn (a little fore-shortened), and seems to have been just washed. Nothing can be more truly the colour of dead flesh. The legs and feet, which are nearest the eye, are in shadow; the principal light, which is on the body, is by that means preserved of a compact form." This picture formerly had a more appropriate place in the School of Anatomy at Amsterdam whence it was purchased by the present King for 3000*l*.

In the Museum, or "the Royal Cabinet of Curiosities," as it is called, many apartments are entirely occupied with Chinese and Japanese objects. The Japanese collection is unique of its kind, from the circumstance of the Dutch being the only people allowed to trade with Japan. These objects illustrate admirably the public and private life, the manners, customs, and costumes, of the Japanese. A curious model, constructed by the Japanese with the closest attention to minute details, represents the island of Desima, where the Dutch have a factory.

A very slight acquaintance with the Dutch brings out several characteristic points, which do not contrast favourably with the kind-hearted Germans. Nowhere more than in Holland does the traveller complain of extortion. I could not help noticing the different feeling with which services are rendered even among children. At Berlin I had taken a lad for my guide, and had given him some trouble in accompanying me to my hotel. When I offered him some remuneration, it was steadily declined, and when, being anxious to repay him in some way or other, I took him into a confectioner's shop, and told him to help himself to what he pleased, he respectfully refused this also, exhibiting a very unusual degree of self-denial, and stating that he had been told not to eat those things. A strange contrast to this behaviour presented itself at Rotterdam. In the morning, while wandering about the streets searching for one of the omnibuses which start nearly every hour for the Hague, I inquired of a boy, who offered to conduct me to the coach office; it was close at hand, and for this slight service the boy expected to be paid. I gave him two stivers (fourpence) but he clamoured loudly in broken German and English for more. He proved, however, that he had been well paid by waiting about for me in the evening, and as I alighted from the coach he at once claimed me. I refused his services, but he was not to be dismissed easily; another came up and offered to serve me better; then appeared a third, then a fourth, a fifth, a sixth, until at length I was fairly beset by a crowd of at least a dozen boys and men, pushing and jostling each other and me, and joking and laughing. The first boy whispered to me to pay him what I liked, and he would conduct me; he asserted that I should not be able to find my way alone, and would certainly fall into one of the numerous canals and get drowned. It was night, and being more than a mile from the Boompjes, I felt there was some truth in the first part of the assertion, and I knew that the shortest way to put down this hornet's nest would be to choose one of the party as my guide, but the spirit of resistance was strong within me, and I determined not to yield to this persecution. I went into a shop, and complained; the man shook his head and understood nothing. I tried another, and found a very civil German, who kindly took me to a house close by where he said I should probably find two of his acquaintances who had just left him, and were going to the Boompjes. A few words in Dutch dissolved the puerile confederation which had mustered strongly at the door; a few of its members lingered at our skirts, but all disappeared as soon as I was placed under protection.

The next day I went on board the Batavier steam-boat, and after a pleasant passage of twenty-four hours arrived at home.



ROTTERDAM.

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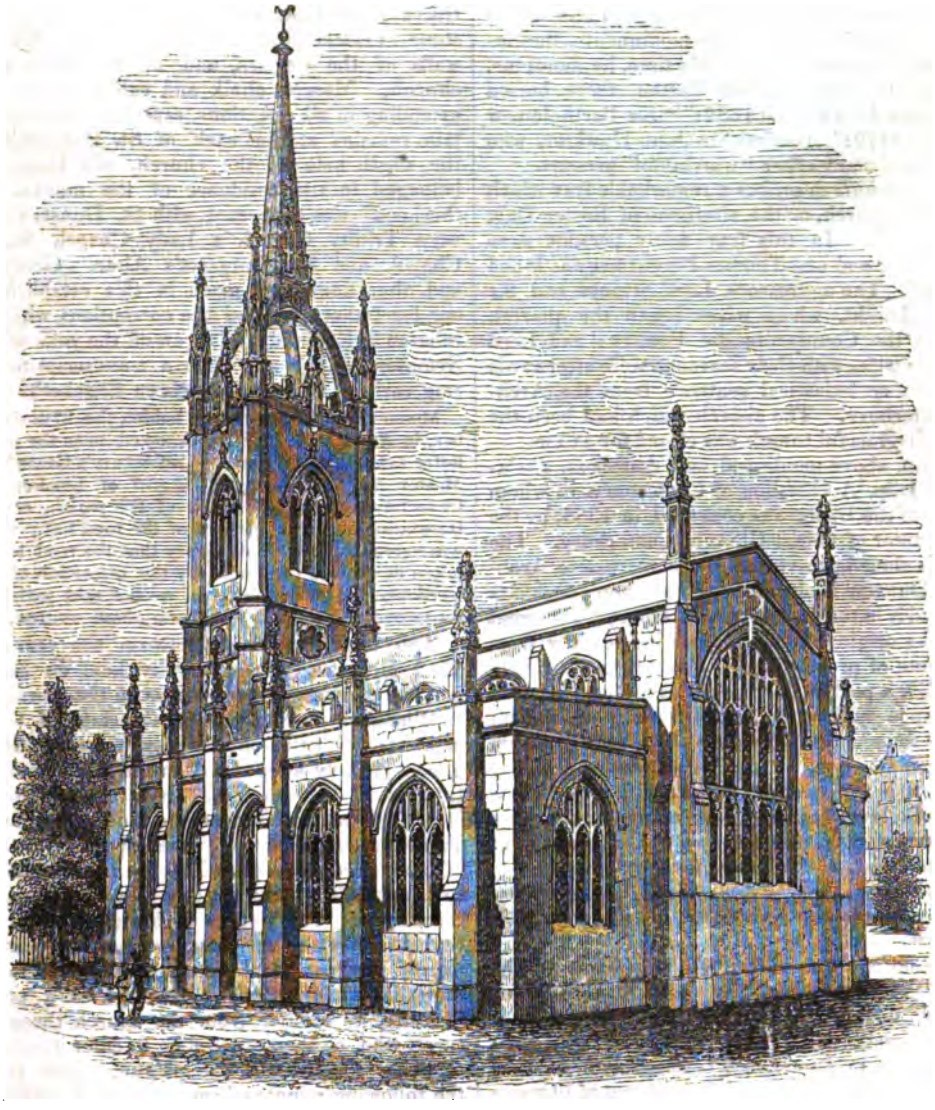
CHURCH OF ST. DUNSTAN IN THE EAST, IN THE CITY OF LONDON.



SOUTH-EAST VIEW OF THE CHURCH OF ST. DUNSTAN IN THE EAST.

There are few ancient ecclesiastical buildings left us within the walls of the City. The churches which escaped the destructive flames of the year 1666, may be soon reckoned. St. Helen, St. Andrew Undershaft, All-hallows Barking, St. Olave Hart Street, and a few others, with their old memorial brasses, and rich marble monuments, are all the more precious on account of their rarity. *The dismal fire*, as it is called in the manuscript records of St. Dunstan's in the East, made cruel havoc with many a "beautiful house" where our fathers worshipped. Still, though the identical old fabric, within whose hallowed walls the merchants of by-gone days, when merchants were as princes, offered up their prayers and praises, be wanting in so many of our London parishes, we have churches on their original sites, and even on the former foundations; so that the imagination may easily people the present edifices with those worshippers whose dust has long rested beneath the aisles or under the shadow of the walls. We have, too, our parish books, going some four centuries back, and referring, in their first pages, to matters at that time settled and old; and well-kept registers, without an entry deficient, from the infancy of those useful records to the present hour. Here and there we possess engraved views of churches which were in all their glory in Queen Elizabeth's time, but which, having been absorbed by neighbouring parishes after the fire, were never rebuilt. The church of St. Mary-le-Bow, Cheapside, serves for three parishes, each of which had once its own proper place of worship. Who would have thought that a venerable structure, St. Michael le Querne, in which the remains of the antiquary, John Leyland, were deposited, extended eastward from the corner of Paternoster Row, where the toy-shop stands, towards the spot on which

the granite column has lately been erected in Cheapside; and that at the east end of that church was *the little conduit by Paul's Gate*, occupying the place of the *old Cross in West Cheap*, which was taken down in 1390? This we learn from John Stow, the indefatigable but ill-rewarded chronicler and annalist, who, in his delightful folio, makes past things present, and brings before our eyes streets and walls, conduits, crosses, statues and tombs, the very ruins of which have long ago perished.

In reference to our present subject, he says, "This church of St. Dunstan is called, in the East, for difference from one other of the same name in the West*. It is a fair and large church of an ancient building, and within a large churchyard." Among the monuments, the inscriptions on which were legible in his time, he mentions, "In the quire, John Kennington Parson, there buried 1374:" "William Islip Parson 1382:" "Sir Bartholomew James, Maior, 1479:" Admiral Sir John Hawkins, who died in 1595, and many other "worshipful" persons.

Stow, in his *Annals* describes a remarkable fray which happened in this church, on the afternoon of Easter Day, in the year 1417. In this fray many persons were severely wounded, and one Thomas Petwarden was killed "out of hand." The aggressors, Lord Strange and Sir John Tussell, knight, whose wives began the quarrel, were taken to the Counter in the Poultry; and Lord Strange and his wife, with their servants, were afterwards punished by an ecclesiastical sentence from the Archbishop of Canterbury. The church which had been the scene of this disgraceful tumult was closed for a time.

William Islip, above-mentioned was, doubtless, a relation of Simon Islip, Archbishop of Canterbury, to whom the patronage of the living was conveyed in 1365, by the Prior and Chapter of Christ Church, Canterbury. The patronage has since been vested in the successive Archbishops. St. Dunstan is one of the Archbishop's peculiars in the City, and is in the diocese of Canterbury. The great antiquity of the original fabric appears incidentally from a written minute of proceedings of a vestry meeting held in March, 1669, a portion of which is as follows:—"The vestry thereupon making a search into their ancient records have found, that *for some hundreds of years* there hath been an organ maintained at the charge of the parish." There is also carefully preserved a very curious Churchwarden's book, commencing at about the year 1450, and containing an allusion to a still more ancient manuscript collection of the same kind.

Item. Payde for wrytyng and engrossing up of Robt. Byfeld's Accompt into the gret booke, *acording to the old usage and custom* . . . . iis.

The following are specimens of the entries in the book now existing; the preceding volume, here called the great book, having been lost for many years.

Item. Paid the 26th day of March, Anno, 1494. I departed with Master P'son to Canterbury to speak with my Lord Chancellor for the Church-matter for the quit rent of 10 marks for the Maid in Tower Street, and the first day of April I came home to London again; the space of 7 days spent I and my man with our two horses and horse-hire, sum. 0 10 7½

Item. Paid for a quarter of coals to hallow the new fire, 4½d. Item. Paid for mending of 2 Albs of St. Margaret Altar, 4d. Item. For a bottle of wine of Whitsunday, 6d. Item. on Corpus Christi day for bread and ale, 2d. Item. For ale where they served St. Dunstan, 1d. . . 0 1 6½

Item. Paid to Sir Thomas Selus, that singeth for Master Stephen Browne for his wages for Michaelmas and Christmas, having after a 11 marks by the year, sum. . 3 13 4

Item. Paid for scouring of the candlesticks of the High Altar and the Rood loft against Easter. . 0 2 0

The preparations made for rebuilding the church, in 1817, laid open foundations which showed that the whole must have occupied a very large space. Portions of the floor of the old church, consisting of glazed and ornamented tiles, were found about two feet below the pavement. A thick marble slab, and stone benches, as well as fragments of a beautiful eastern window, were also brought to light. This window and the chancel occupied the site of the present chancel and window; the latter being a complete restoration of this very interesting relic of the ancient church. In the south wall of the old chancel a very perfect piscina, carved out of one block of Purbeck marble, was discovered, and opposite to it in the north wall the remains of a stone ambry, of which part of the hinges remained. There were no traces of sedilia, or seats for the priests. Some stone vessels for holy water were found in the walls of the porches, and at the west end of the church. Massive chalk and rubble walls were traced extending in all directions, especially northwards. Certain remains at the back of St. Dunstan's Alley, on the north side of the church, are thought to have belonged to the residence of the monks. A "brotherhood" was connected with St. Dunstan's; and there were Trinity Chapel, a Lady Chapel, St. Anthony's Chapel, and St. Margaret's Altar. Great reductions and alterations were made in this establishment when our forefathers rejected the corruptions which deformed religion in England, and threw off the yoke of Romanism. Symptoms of this appear in a manuscript minute occurring early in the reign of Queen Elizabeth.

Memorandum. At a vestry holden the 27th day of December, in Anno 1560, there was showed unto the parishioners a letter sent from the Lord of Canterbury's Grace†, directed to Master Alderman Draper, Sheriff of London, and to the Churchwardens with the rest of the parish, concerning the translating and pulling down of the rood loft; whereupon it was agreed by the whole vestry that the rood loft should be taken down and translated by the discretion of the Churchwardens. In witness whereof we the said parishioners have set to our names the day and year above written.

The vestry meetings, between the years 1551 and 1559 inclusive, were generally held on Sundays, and in 1722 the vestry met at eight in the morning!

Whatever may have been the state of the buildings connected with this church previously to 1666, they were almost entirely swept away in the awful conflagration of that year. We may find "good in everything;" and it is not difficult to discover the kindness of our heavenly Father in that visitation, which appeared at the time one of unmingled calamity. The fire is reasonably supposed to have tended to rid the city of a more terrific scourge, the plague. The notices of burials in this parish, the registers of which are complete from the year 1558, bear painful testimony to the share which it had in the general mortality. It became necessary, as a precautionary measure, to exclude from the church those poor creatures, who, on their proceeding to enter it, were suspected of being infected with the plague. This is shown by the following minute of vestry, Sept. 1, 1665.

It is likewise ordered that two warders be appointed to attend at the church doores to keepe out such persons as they suspect to be infected, and that the Churchwardens do pay each of them 6d. weekely for their paines.

Many there were at that awful period, who, when they felt death approaching, valued more highly than they had done before, the means of grace, and the opportunities of public worship. Eight persons of one family in this parish were buried between the second and last week of September, 1665. In September, indeed, the pestilence appears to have been at its height. The Rev. Thomas Vincent, who was a witness of many of its most appalling occurrences, speaking of this month in his curious tract, entitled *God's terrible Voice in the City*, says:—

Of the 130 parishes in and about the city, there were but four parishes which were not infected, and in those, few people remaining that were not gone into the country.

* For an account of the Church of St. Dunstan in the West, and a notice of the life of Dunstan, see *Saturday Magazine*, Vol. V., p. 97. He was Archbishop of Canterbury, and died A.D. 987. The oft-told legend respecting him is represented on the silver head of the beadle's staff of the parish of St. Dunstan in the East.

† Dr. Matthew Parker, Archbishop of Canterbury, born 1504, died 1575.

The excellent John Evelyn, in his *Diary*, Sept. 7, 1665, wrote thus:—

I went all along the city and suburbs to St. James's, a dismal passage, and dangerous to see so many coffins exposed in the streets, now thin of people, the shops shut up, and all in mournful silence, as not knowing whose turn it might be next; there perishing nearly 10,000 poor creatures weekly.

He concluded his diary for the year with the following expression of thankfulness on finding himself spared:—

Now blessed be God for his extraordinary mercies and preservation of me this year, when thousands and ten thousands perished, and were swept away on each side of me!

The reflections of the gay and worldly man of business, Samuel Pepys*, on this awful visitation, form a striking contrast with those of the true Christian gentleman just quoted. They were intimate friends, but saw the solemn events of their time in different lights, one with an eye to this world, the other with a constant view of the next. In the adjoining parish of St. Olave Hart Street, in which Pepys resided, the burials were very numerous. Between September 10 and September 15, 1665, six of one family, probably the whole of the inmates, were buried from one house. At this date Pepys wrote thus in his *Diary*:—

It is a wonder what will be the fashion after the plague is done, as to perriwigs; for nobody will dare to buy any hair for fear of the infection, that it had been cut off the heads of people dead of the plague.

Soon after this the plague passed away; and though London was a mere wreck as to its buildings, the blessing of health and a pure atmosphere was restored. As early as the year 1667, the worthy inhabitants of St. Dunstan's began the good work of raising their church from its ruins. But the resources at their disposal were small, when the pious munificence of a lady, whose family had long been connected with the parish, furnished ample means towards the undertaking. The Lady Dionys Williamson, of Hales Hall, Norfolk, contributed towards the restoration of this church, no less sum than four thousand pounds, 500*l.* of which she reserved until some security should be given to her by the parish "for the constant maintaining and using of the organ." Taking delight in church music herself, she adopted measures for enabling her fellow-christians to share these pleasures of devotion. Proposals having consequently been made in her behalf by her relative, Sir J. Hale, Bart., the vestry in 1669 directed a lease to be made to the said Lady Dionys Williamson for 500 years of 20*l.* per annum, on certain houses in Thames Street, and on St. Dunstan's Hill, upon the condition, that if it should be forbidden by authority to use the organ, the said lease should be void. A special reason for some such provision may be found in the fact that in the year 1631, the fabric having become decayed, and extensive repairs executed, which cost 2,400*l.*, it was ordered "that the organ be played no more on account of the church being repaired, and the parish too poor, and the poor increasing, and a great dearth." This lady's donation, 2,620*l.*, towards the rebuilding of St. Paul's Cathedral, was larger than that of any other person.

Besides the assistance derived from private individuals, and the munificence of public bodies, a duty was levied on coals towards the re-erection of the Cathedral and the other City churches. A portion of the proceeds of this tax was assigned to St. Dunstan's:

On the 20th October, 1671, it was agreed that six Parishioners, with the Church wardens, doe attend Doctor Christopher Wrenn about the money ordered by the Lords Commissioners to this parish, for the rebuilding of the Church, out of the moneyes arising from the imposition layd upon Coales, by Act of Parliament, for the rebuilding of Churches burnt down in the Citye of London.

From this date Sir Christopher Wren had the superintendence of the repairs; and he has left us in the tower and spire, which were built from the ground, and are the only parts remaining of his building, undeniable proofs of his architectural taste and great mechanical skill. The elegant and airy spire is supported on four arched ribs springing from the angles of the tower. There is a tradition that the plan of this admirable work was furnished by the daughter of the architect. We have no authentic record of this circumstance; nor is it to be found even hinted at in the *Parentalia*, compiled by the son, and published by the grandson, of Sir Christopher Wren. Yet there is something pleasing, and not improbable in the story. This great man, who was styled "the miracle of our age and country*," conducted the building and restoration of fifty-four London churches, *besides St. Paul's*, "all which," says he, "were executed during the fatigues of my employment in the service of the crown." His only daughter Jane died in 1702 at the age of twenty-six, and was buried in a vault under the choir of St. Paul's. A Latin inscription on her monument describes her, as *possessed of her father's talent, a lover of literature, pious, benevolent, fond of home, highly accomplished in the art of music.* It it not, perhaps, assuming too much to suppose that a person so gifted as she was may have rendered essential help to an honoured relative in his labours, heavy as those above-mentioned must have been, in addition to his avocations as Surveyor-General of all the royal buildings, President of the Royal Society, &c. The date of the completion of the tower and spire of St. Dunstan's, A.D. 1698, is not unfavourable to the notion which, however vaguely, has assigned to this lady the most tasteful part of the undertaking. In the catalogue of Wren's churches, given in the *Parentalia*, the following is the description of this structure:

St. Dunstan's in the East is situated in the middle way between Tower Street north, and Thames Street south, in Tower Ward. The church was only repaired, and new beautify'd, but the steeeple was erected as it now appears, in 1698. The windows and steeple are of a modern Gothic style, but the pillars and arches within are Tuscan. The altitude of the steeple, consisting of a stone tower and spire at each corner of which tower are four neat smaller spires, and the fifth or principal, erected on four Gothic arches, is seventy-five feet.

It is said that on the morning after the dreadful hurricane, in November 1703, Wren, on hearing that the steeples in London had suffered severe injury during the night, said that he felt sure of finding St. Dunstan's perfectly safe. Sir Christopher Wren died in 1723, aged ninety-one. "He passed the greatest part of the five last years of his life in contemplation and studies, and principally in the consolation of the Holy Scripture; cheerful in solitude, and as well pleased to die in the shade as in the light†."

There were in the church so repaired, fine specimens of oak-carving in fruit and flowers, by the celebrated Grinling Gibbons, and an organ built by Father Smith. In the year 1810 some alarming symptoms of insecurity in the building appeared. It was found that the nave roof had thrust the wall seven inches out of the perpendicular. Further evidences of weakness induced the committee of the parish, after a careful survey, to take steps for rebuilding the nave walls from the arches. On proceeding with these alterations, in consequence of the extent of the decay, they found it necessary to take down the whole of the building, with the exception of the tower and steeple, and to raise the whole anew from the foundations. The architect appointed was Mr. David Laing. He, with the active assistance of Mr. Tite, who is now engaged in rebuilding the Royal Exchange, erected the present fabric. The first stone was laid at the north-east corner, by the Most Rev. Dr. Manners Sutton, Archbishop of Canterbury, in 1817, and

* Secretary to the Admiralty in the reigns of Charles II. and James II.

* Evelyn.

† *Parentalia; or, Memoirs of the Family of the Wrens;* folio, 90, 1750, p. 344.

the church was opened for divine service in 1821. It is constructed of Portland stone, and is a good specimen of that style of Gothic architecture, termed by Rickman, the "perpendicular." The principal entrance is from the north-east, by a porch with a groined ceiling: there is another entrance at the west end beneath the tower. The interior is very striking as a whole; and a harmony of appearance has been preserved in the several parts. There are three aisles of nearly equal width, divided by slender clustered columns, and pointed arches of stone. The only gallery is that at the west end for the organ, and for the children of the Tower Ward Charity School. The windows of the aisles are designed to correspond with the great east window. Not only is this similar in size and details to the ancient one which occupied the same place in the building destroyed by the great fire; but the whole fabric is stated by the architect to have been composed with a prevailing reference to the character of the original structure. The painting in this window is intended to describe symbolically the Law and the Gospel; the lower compartment containing figures of Moses and Aaron with the ark of the covenant, the table of shew-bread, &c., and in the higher are representations of Our Saviour and the four Evangelists.

The monuments are all of a date subsequent to the fire. One on the north side, raised by the parishioners, commemorates the munificence of Lady Williamson. The monuments to Bernard Hyde, Sir John Moore, and Sir William Russell, are in the chancel. They were former worthies of St. Dunstan's, and generous benefactors to its poor. A tablet in the chancel to the memory of the Rev. W. Strengfellow, who died in 1731, states that he was successively curate, lecturer, and rector, of St. Dunstan in the East, during a period of forty years. He was a worthy clergyman, of whose preaching Evelyn spoke favourably. There is also a monument to some members of the family of Dr. John Jortin, who was Archdeacon of London, and rector of the parish, and whose published sermons, chiefly preached in this church, were dedicated to the inhabitants. Dr. Vicesimus Knox, the author of the *Essays*, was his curate for upwards of eight years.

In the completion of the great and costly work of erecting a suitable church in this ancient parish, the inhabitants have secured not only for themselves and their families but, it may be humbly hoped, for future generations, a permanent place of adoration to Him who has set His name there, and to whom for centuries past prayer on the same spot has been offered; and they have shown on this and other occasions a laudable zeal for the habitation of God's house, and the place where His honour dwelleth.

Some of our readers may probably have noticed the rooks which build in the trees in the south church-yard. The rookery before the last church was removed, consisted of upwards of twenty nests; and they were annually supplied with ozier twigs and other materials for building. The colony migrated to the Tower of London, when disturbed in 1817, and built in the White Tower, but returned afterwards, as soon as the noise of axes and hammers had ceased. At this day their little building-materials are hospitably provided for them by the assistant-overseer.

The population of this parish is now comparatively small. Twelve burials took place in the year 1842 There were seventy-six burials in 1722, and sixty-four in 1742. The numbers under the heads of christenings and marriages, at the several periods, also serve to show the vast decrease which has taken place in the population of this part of London. M.

We may write over the Gospel what the Egyptians did over their library, "This is the hospital for sick souls."—Bishop Patrick.

EASY LESSONS ON REASONING.

Lesson III.

§ 1. In such an argument as that in the example above given, (in § 2, Lesson ii.,) it is clearly impossible for any one who admits both Premises, to avoid admitting the Conclusion. If you admit that, "Whatever exhibits marks of design, had an intelligent Maker," and also, that "the world exhibits marks of design," you cannot escape the Conclusion, that "the world had an intelligent Maker."

Or again, if I say, "All animals with horns on the head are ruminant; the Elk has horns on the head; therefore it is ruminant;" it is impossible to conceive any one's doubting the truth of the Conclusion, supposing he does but allow the truth of each Premise.

A man may perhaps deny, or doubt, and require proof, that all animals thus horned do ruminate. Nay, it is conceivable that he may even not clearly understand what "*ruminant*" means; or he may have never heard of an "*Elk;*" but still it will be not the less clear to him, that, *supposing* these Premises granted, the Conclusion must be admitted.

And even if you suppose a case where one or both of the Premises shall be manifestly false and absurd, this will not alter the *conclusiveness* of the Reasoning; though the *conclusion* itself may perhaps be absurd also. For instance, "All the Ape-tribe are originally descended from Reptiles or Insects: Mankind are of the Ape-tribe; therefore Mankind are originally descended from Reptiles or Insects:" here, every one* would perceive the falsity of all three of these propositions. But it is not the less true that the conclusion *follows* from those premises, and that *if* they were true, it would be true also.

§ 2. But it often happens that there will be a *seeming* connexion of certain premises with a conclusion which does not really follow from them; although, to the inattentive or unskilful, the argument will appear to be valid. And this is most especially likely to occur when such a seeming argument [or Fallacy] is dressed up in a great quantity of fine-sounding words, and is accompanied with much vehemence of assertion, and perhaps with expressions of contempt for any one who presumes to entertain a doubt on the matter. In a long declamatory speech, especially, it will often happen that almost *any* proposition at all will be passed off as a proof of any other that does but contain *some of the same words*, by means of strenuous assurances that the proof is complete.

Sometimes again, sound arguments will be distrusted as fallacious; especially if they are not clearly expressed; and the more, if the conclusions are such as men are not willing to admit.

And frequently also, when there really is no sound argument, the reader or hearer, though he believes, or suspects, that there *is* some fallacy, does not know how to detect and explain it.

§ 3. Suppose for instance, such seeming arguments as the following, to be proposed:—(1.) "Every criminal is deserving of punishment; this man is not a criminal; therefore he is not deserving of punishment:" or again, (2.) "All wise rulers endeavour to civilize the People; Alfred endeavoured to civilize the People; therefore he was a wise ruler." There are perhaps some persons who would not perceive any fallacy in such arguments, even when thus briefly and distinctly stated. And there are probably many who would fail to perceive such a fallacy, if the arguments were enveloped in a cloud of words, and conveyed at great length in a style of vague indistinct declamation: especially if the conclusions were such as they were disposed to admit. And others again, might perceive indeed that there *is* a fallacy, but might be at a loss to explain and expose it.

Now the above examples exactly correspond, respectively, with the following; in which the absurdity is

*Except certain French Naturalists.

manifest:—(1.) "Every tree is a vegetable; grass is not a tree; therefore it is not a vegetable;" and (2.) "all vegetables grow; an animal grows; therefore it is a vegetable." These last examples, I say, correspond exactly (considered in respect of the *reasoning*) with the former ones; the conclusions of which, however *true*, no more *follow* from the premises than those of the last.

This way of exposing a fallacy, by bringing forward a similar one where a manifestly absurd conclusion professes to be drawn from premises that are true, is one which we may often find it needful to employ when addressing persons who have no knowledge of technical rules; and to whom, consequently, we could not speak so as to be understood, concerning the principles of Reasoning.

But it is evidently the most convenient, the shortest, and the safest course, to ascertain those principles, and on them to found rules which may be employed as a test in every case that comes before us.

And for this purpose it is necessary (as has been above said) to analyse the Reasoning-process, as exhibited in some valid argument, expressed in its plainest and simplest form.

§ 4. Let us then examine and analyse such an example as one of those first given: for instance, "Every animal that has horns on the head is ruminant; the Elk has horns on the head; therefore the Elk is ruminant." It will easily be seen that the validity [or, "conclusiveness;" or "soundness"] of the Argument does not at all depend on our conviction of the truth of either of the Premises; or even on our understanding the meaning of them. For if we substitute some unmeaning Symbol, (such as a letter of the alphabet) which may stand for anything that may be agreed on—for one of the things we are speaking about, the Reasoning remains the same.

For instance, suppose we say, (instead of "animal that has horns on the head,") "Every X is ruminant; the Elk is X; therefore the Elk is ruminant;" the argument is equally valid.

And again, instead of the word "ruminant" let us put the letter "Y:" then, the argument "Every X is Y; the Elk is X; therefore the Elk is Y;" would be a valid argument as before.

And the same would be the case if you were to put "Z" for "the Elk:" for the syllogism "Every X is Y; Z is X; therefore Z is Y," is completely valid, whatever you suppose the Symbols X, Y, and Z to stand for.

Any one may try the experiment, by substituting for X, Y, and Z, respectively, any words he pleases; and he will find that if he does but preserve the same *form* of expression, it will be impossible to admit the truth of the Premises, without admitting also the truth of the Conclusion.

§ 5. And it is worth observing here, that nothing is so likely to lead to that—very common, tho' seemingly strange—error, of supposing ourselves to understand distinctly what in reality we understand but very imperfectly, or not at all, as the want of attention to what has been just explained.

A man reads—or even writes—many pages perhaps, of an argumentative work, in which one or more of the terms employed convey nothing distinct to his mind: and yet he is liable to overlook this circumstance, from finding that he clearly understands the *Arguments*.

He may be said, in one sense, to *understand what he is reading;* because he can perfectly follow the *train of Reasoning*, itself. But *this*, perhaps, he might equally well do, if he were to substitute for one of the words employed, X, or Z, or any other such unknown Symbol; as in the examples above.

But a man will often confound together, the *understanding of the Arguments*, in themselves, and the *understanding of the words employed*, and of the nature of the things those words denote.

It appears then, that valid Reasoning, when regularly expressed, has its validity [or conclusiveness] made evident from the mere *form of the expression* itself, independently of any regard to the sense of the words.

§ 6. In examining this form, in such an example as that just given, you will observe that in the first Premise ("X is Y,") it is assumed universally of the *Class* of things (whatever it may be) which "X" denotes, that "Y" may be affirmed of them: and in the other Premise, ("Z is X") that "Z" (whatever it may stand for) is *referred* to that Class, as *comprehended* in it. Now it is evident that whatever is said of the *whole* of a Class, may be said of anything that is comprehended [or "included," or "contained,"] in that Class: so that we are thus authorized to say (in the conclusion) that "Z" is "Y."

Thus also, in the example first given, having assumed universally, of the Class of "Things which exhibit marks of design," that they "had an intelligent maker," and then, in the other Premise, having referred "The world" to that Class, we conclude that it may be asserted of "The world" that "it had an intelligent maker."

And the process is the same when anything is *denied* of a whole Class. We are equally authorized to deny the same, of whatever is comprehended under that Class For instance, if I say, "No liar is deserving of trust; this man is a liar; therefore he is not deserving of trust:" I here deny "deserving of trust," of the whole Class denoted by the word "liar;" and then, I refer "this man" to that Class; whence it follows that "deserving of trust" may be denied of him.

§ 7. This argument also will be as manifestly valid, if (as in the former case) you substitute for the words which have a known meaning, any undetermined Symbols, such as letters of the alphabet. "No X is Y; Z is X; therefore Z is not Y," is as perfect a syllogism as the other, with the affirmative conclusion.

To such a form all valid arguments whatever may be reduced: and accordingly the principle according to which they are constructed, is to be regarded as the UNIVERSAL PRINCIPLE OF REASONING.

It may be stated, as a general Maxim, thus: "Whatever is said, whether affirmatively, or negatively," [or "whatever is affirmed or denied"] "of a whole Class, may be said in like manner," [that is "affirmed in the one case, and denied in the other,"] "of everything comprehended under that Class."

Simple as this Principle is, the whole process of Reasoning is embraced in it. Whenever we establish any Conclusion,—that is, show that one thing may allowably be affirmed, or be denied, of another—this is always in reality done by referring that other to some Class of which such affirmation or denial can be made.

The longest series of arguments, when fully unfolded, step by step, will be found to consist of nothing but a repetition of the same simple operation here described. But this circumstance is apt to be overlooked on account of the *brevity* with which we usually express ourselves. A Syllogism, such as those in the examples above, is seldom given at full length; but is usually abridged into an "Enthymeme*." (See Less. II. § 3.) And moreover what is called "*an* argument," is very often not *one* argument, but *several* compressed together; sometimes into a single sentence. As when one says, "The adaptation of the instinct of suction in young animals to the supply of milk in the parent, and to the properties of the Atmosphere, as well as other like marks of design, show that the world must have had an intelligent Maker." For most men are excessively impatient of the tedious formality of stating at full length anything that they are already aware of, and could easily understand by a slight hint.

* That is, an argument with one of the Premises understood.

REFLECTIONS ON THE GLORY OF THE SUN.

Along the skies the SUN obliquely rolls,
Forsakes, by turn, and visits both the poles.
Different his track, but constant his career,
Divides the times and measures out the year.
To climes returns where freezing winter reigns,
Unbinds the glebe, and fructifies the plains;
The crackling ice dissolves; the rivers flow;
Vines crown the mountain tops, and corn the vales below.—
BAKER.

THIS immense and magnificent luminary, which enlivens and governs the several planetary worlds, both primary and secondary, that revolve continually around him, is properly made use of in holy writ as an emblem of the Fountain of being and the Saviour of men. As the whole system, of which we are a part, derives cheering light and invigorating heat from this vast orb, whose influence pervades the remotest objects with inconceivable rapidity and power, so the divine goodness is continually present in every place, to illuminate the understanding and improve the heart of every believer.

Viewing the material sun in all its glorious qualities, and beneficial operations upon every object within its system, how are the whole eclipsed and surpassed by Him who is the sun of our immortal souls, of whose grace and merit this is but a faint emblem, and from whom issues, in bright and gentle beams, all the light and all the joy we experience now, or hope to enjoy hereafter! The sun is, indeed, the most splendid object in the creation; but the other is the source of all that is comely and attractive, both in nature and grace. The material sun runs its course and completes its circuit, to fulfil its original destination, from day to day, with unwearied regularity, activity, and ardour. And has not our divine Redeemer also finished the great career of our salvation, by performing all those miracles of mercy for which the Father of the universe ordained him from everlasting, and is he not still proclaimed through the Gospel as the sovereign luminary of his spiritual dominions? The material sun diffuses vitality, illumination, vegetation, and joy through all animated nature, whether in our own planet, or in the worlds around us. And does not the Sun of Righteousness dissipate the ignorance which darkens the intellectual region, enlighten our minds in all saving knowledge, and spread abroad in the human heart every grace and virtue?

Were our natural sun to withdraw its beams for a length of time, the whole space would instantly be as black as night, and "chaos would come again." Now, if it were possible for us to survive such a loss, and to endure so dreadful a condition, with what exuberant joy and gratitude should we not hail the return of the solar rays to our hemisphere, and rejoice in the light and heat of the soul of our system.

And before the day-spring from on high visited us, the depth and degeneracy in which ignorance and impiety had plunged us were as deplorable. The moral world was in a state of darkness and corruption, with little knowledge of the principles of duty, and still less of a state of rewards and punishments hereafter. A remembrance of the paradisiacal world, where righteousness prevailed and happiness was experienced, did indeed continue among a chosen few: and a hope prevailed, founded upon the promise given, that divine light would again arise upon the earth, and all the powers of darkness be dispelled. And the long-promised and long-expected Deliverer, after a dismal period of idolatry, arose upon the benighted world, and brought life and immortality to the clearest light, for the direction and comfort of the sons of men.

Could it be credited, but for the evidence of fact and experience, notwithstanding his kindness for the worthless and unthankful, that the friend of our race was, and still is, *despised and rejected of men?* Does not the earth return the fructifying warmth of the sun with a profusion of verdure, foliage, and flowers? Do not the irrational tribes greet his rising every morning, and rejoice in his presence during the day, with apparent gratitude? Are not all the orbs which circulate around him, and are preserved and cherished in their respective paths, continually rendering him perpetual homage by maintaining invariable order and harmony? Now are we not hereby taught by all nature what is due to the reception of so many higher mercies, and do not the material works of God upbraid us with ingratitude to our best Benefactor and Redeemer?

The planetary system to which we belong, neither existed from eternity, nor will it endure for ever. Even the glorious luminary which irradiates and enlivens it, was kindled at the command of Omnipotence; and we are assured, also, on the same authority, that the hour is coming when the *sun shall be darkened, and the moon shall not give her light.* Having fulfilled its destined part in the universe of systems, our spacious and magnificent one must give way to another, and *new heavens and a new earth* shall arise in the room of the present world.

That the heathen nations, among whom the traditionary evidence of a Supreme Creator was lost or perverted by superstition, should make the sun the primary object of their religious adoration, cannot be a matter of wonder. Much must be conceded to the feelings of men, who experienced, under the most fertile climates, the powerful influence of this luminary upon all the luxuries of vegetation. Who can behold the rising of the sun, even in a northern region, without admiration, and a devotional sentiment to the great Lord of all! But in countries where the scenery is richer, and the sky more serene, such a spectacle must increase in lustre and grandeur. That so glorious an object should inflame the affections, and make a deep impression upon the heart, was natural; and therefore, when we behold the Persian and Indian prostrate before the rising sun, piety may wish them better knowledge, but pity may compassionate the delusion, though it cannot excuse the error.

It has been philosophically proved that the sun is not a body of fire; and that the intensity of heat it produces is not in the rays themselves, but in consequence of the action of our atmospheric medium upon them. This is demonstrated by the simple circumstance, of the great cold felt on the tops of mountains, while persons on the sides, and in the valleys, are overpowered with heat. So far, then, is the sun from being an object of dread and horror, that, in fact we have new reasons to admire the wisdom and goodness of God in its creation.

The Almighty has created nothing in vain, and every part of the visible creation abounds with life. It is not reasonable to suppose, that any one of the bodies which are scattered throughout the immeasurable expanse of the universe, is without inhabitants. There is something sublime and elevating in the thought that, every solar ray which pervades our atmosphere brings us intelligence from the world, perhaps, of a higher order of creatures than ourselves.

He, the great Father, kindled at one flame
The world of rationals; one spirit poured
From spirit's awful fountain; poured himself
Through all their souls, but not in equal stream,
Profuse or frugal of the aspiring god,
As his wise plan demanded: and when past
Their various trials in their various spheres,
If they continue rational as made,
Resorbs them all into Himself again,
His throne their centre and his smile their crown
YOUNG.

[Abridged from BASELEY'S *Glory of the Heavens.*]

ON INSECTS WHICH ARE INJURIOUS TO THE FARMER.

II.

In proceeding to notice some of the remedies set forth in the article to which we have already referred, and which have been applied with various degrees of success to defend the turnip-crop from the attacks of the turnip-beetle or fly, the general economy of which was noticed in the former article, the reader will not think the subject undeserving of all the attention of scientific and practical men, when it is stated that so long back as the year 1786, the value of the turnip-crop destroyed by this insect in Devonshire alone, was valued at one hundred thousand pounds.

In this, as in all other cases where the evil is great, the proposed remedies are numerous, and before any positive antidote can be discovered, the observations of practical men must be recorded, from every sort of soil, under the various influences of climate, and effects of cultivation. In order to become competent observers our farmers must acquire a competent knowledge of the nature of the evil which so materially diminishes the value of their property and labour, and to this end we recommend that the experiments of Mr. Le Keux be repeated in every farm-house. They are not difficult, and would afford the young members of the family a useful lesson in natural history, and enlarge their knowledge on a subject of such vital importance to their father's property, and consequently to themselves.

First, fill a garden-pot with earth, carefully sifted, to remove all worms, centipedes, or other living animals which might destroy the chrysalides: then plant in it a small turnip in rough leaf, having a fine wire-gauze guard large enough to inclose the plant, and fitting just inside the top of the pot. One or more pairs of the beetles must be placed, with a fresh turnip leaf, in a large-mouthed transparent bottle, the mouth of which must have a piece of muslin tied over it to prevent the escape of the insects; for if the cork or stopple be put in, the bottle will become wet inside, and the insects will be deprived of air, and no eggs will be produced. The leaf may be examined daily with the aid of a magnifying glass, and as soon as any eggs are discovered, they may be placed in the pot where the turnip is growing, so that the little maggots may get at the living leaves as soon as they are hatched. The progress of the insect may thus be traced through its different stages, and a knowledge of its habits gained, which may be applied to purposes of practical utility. The garden-pot must be kept in a saucer, into which water should be poured daily.

There is another species of Altica injurious to the turnip-crop, and known as the *Altica concinna*, the brassy or tooth-legged turnip-beetle. It is shown in the figure highly magnified, the smaller figure being the natural size. It is more oval, convex, and shining than *A. nemorum;* it is of a greenish-black colour, more or less tinged with a brassy or copper hue.

THE BRASSY, OR TOOTH-LEGGED TURNIP-BEETLE.

In proceeding to the catalogue of remedies against the turnip-fly we find at the head of the list those natural agents, such as cold springs, heavy rains, and long droughts, all of which destroy the insect; and next, the parasites which prey upon the maggots and chrysalides. These parasites have not as yet been clearly ascertained, but large numbers of small carnivorous beetles have been found with and probably preying upon the turnip-beetles. The farmer, too, must not forget that the small birds are among his best friends, a great number of which, such as the grey and yellow wagtails, no doubt destroy incredible numbers of these insects in their various stages. Mr. Curtis recommends that their nests be protected, and the birds themselves defended from persecution.

These natural processes are slow, although never-failing—

for it is a wise dispensation of Providence to keep every animal in check by some other that is either more powerful or more sagacious than itself, and this counteracting effect is produced in an equal degree, or eventually superior to the noxious animal, so that in a greater or less space of time the destructive power may be rendered no longer formidable, or be absolutely annihilated by the attacks of its parasites.

But it is often of the greatest consequence to the farmer to secure a more speedy relief than insect parasites and small birds afford.

During the three first stages of the insect, viz., the egg, the maggot, and the chrysalis, Mr. Curtis thinks that little can be done to destroy the enemy. It would probably be different if the period of their attack were limited to one season of the year, but as each pair may produce five or six broods in a season there is a constant succession, which renders it almost impossible to extirpate the beetle in any of its three early stages. It is in the perfect state of the insect that most mischief arises, and then they may be attacked with most prospect of success if they cannot be kept off by other means.

But as the turnip when in rough leaf is not endangered by the attacks of the beetle, the first care must be to preserve the young plant by preparing the soil, or using such speedy means the instant the beetle appears as will destroy or drive them away. The great object will to discover the best manure for the purpose, and a dressing that will render, if possible, the soil obnoxious to the insect.

It has been truly said that the manure which most effectually promotes the growth of the plant will be the best defence from the insect; and that when the growth is slowest, the danger from the insect is most serious.

This arises (says Mr. Curtis,) in a great measure from the advantage that insects have over vegetation; a gleam of sunshine is almost sufficient to call them into active life, as is evident from the swarms of delicate gnats that may often be seen dancing in the air when frost is on the ground even in January; but it requires the accumulated rays of the sun, and a much longer duration of warmth, to set in action the fluids of plants.

The discovery of a manure that shall render the soil obnoxious to the insects is scarcely to be hoped for; it ought to ferment so rapidly as to furnish large quantities of ammonia, a moderate fermentation being likely rather to assist the changes of state in the insect; any manure that would injure them must be spread out in a very uniform stratum, because the instinct of insects is so perfect that the maggot would avoid obnoxious spots. The strong manures of lime, soot, and ashes, which have been so repeatedly tried under various circumstances, are of very doubtful efficacy.

Burning has been found a good preventive by destroying the chrysalides in the land; but this method does not suit sandy soils, and cannot be adopted regularly on any land.

Feeding off the turnips is also a good practice, but Mr. Curtis attributes "the advantages derived from sheepfolding as regards the beetle, to the perfect stamping down of the soil and herbage, by which all insect-life is destroyed."

A method of deep ploughing has been favourably recommended, the intention being to bury the chrysalides deeply under the furrow, where they will perish, for want of sufficient sun and moisture to bring forth the little

beetles, or even if they are hatched, they would not be able to escape from the earth heaped upon them; but this is taking it for granted that the chrysalides are already in the soil. It is also stated that drilling is far superior to broadcast, and this is believed in Scotland to keep away the beetles.

The culture of mangold-wurtzel is recommended to the farmer when the land gets tired of turnips, for it does not encourage the increase of the turnip-beetles. Since it appears certain that the beetles are attracted by scent, Mr. Curtis suggests, that if a field of turnips were planted round with a belt of mangold-wurtzel, the turnips might, in a great degree, escape their attacks; especially when the insects are believed to come from a distance; for at the early stage of the plants, a few hours of respite may be of vital importance.

But while such plants as are obnoxious to the beetle ought to be encouraged, so on the other hand, the farmer ought to root out such cruciferous plants as the hedge-mustard, and ladies'-smock, which grow in every hedge and meadow, and to which the turnip-beetles are strongly attached; they appear long before the turnips come up, and attract and nourish the parents of the future swarms that are to sweep away the farmer's crops.

The Swedish turnip at an advanced period, has not the strong scent of the English turnip when in rough leaf, and is therefore not so likely to attract the turnip-beetle. The plan sometimes adopted, of mixing the seeds of the two, is obviously not desirable.

Hoeing and rolling may be usefully employed to harass and destroy many of the beetles, while, at the same time, it promotes the growth of the plants.

I expect also (says Mr. Curtis) that if it were performed in damp days, or after heavy dews, the benefit would be increased; for if the beetles leap in moist weather, they often fall upon their backs, where they stick, and, after being exhausted, become torpid and apparently dead, if the air be cold; but they reanimate as they are dried by the sun. In cold and wet weather it might not prove less efficient; for multitudes of the flies are then sheltered under and about the clods, which being broken down, the insects must perish by the pressure; and if there were any chrysalides in the earth, they would in all probability suffer the same fate.

The beetles are said to be annoyed and driven away, when boughs of elder are drawn over the field. It is also recommended to strew in gardens, for the purpose of catching the beetles, the leaves of the alder, which, when fresh gathered, are covered with a glutinous liquor; and those of the lime, &c., when the heavy dew is upon them.

From the great dislike of the fly to repeated moisture, it has been suggested to water the turnips every other day, four, five, or six times if necessary. The addition of a quantity of salt, or a little lime, to the water, may be useful. Nitrate of soda, which may be used on all soils, chalk excepted has been found beneficial in checking the increase of the beetles. It was sown two or three days after the seed, mixed with wood-ashes, and broadcast.

Mr. Paul's net has also been usefully employed. Mr. Curtis has seen a quart bottle filled with the little turnip-beetles caught with this net. Mr. Paul's plan was to sow a small spot with white turnips early, as a decoy, and over that space to draw his net.

A board newly painted or tarred and drawn over the turnips will set the beetles leaping, and thus catch multitudes of them. The board should be covered with white paint as bright as possible, as all insects are attracted by light colours. This plan should not be practised in wet or windy weather, because the beetles are then disinclined to move; nor is a fine sunshiny mid-day the proper season, because they are then too active, and fly well; for it is a well-known fact, supported also by the flight of swallows, that in hot days and sunshine insects fly high, whilst in damp weather they keep near the ground.

Fumigation by burning stubble and weeds to windward of the field, so that the smoke drives along the ground, has proved effectual.

A successful practice adopted in Hanover, consists in sprinkling the dust of chalky roads on the young plants at night when a heavy dew is falling, until they appear covered with the powder. The fly it is said will disappear, especially if the next day be a bright sunshine and the dust is dried upon the leaves, which prevents their little teeth from gnawing the leaf, or otherwise disgusts them. An infusion of wormwood, sprinkled over the young plants and seed-beds, will it is said drive away the flies. Mr. Le Keux found that washing over the plants with sulphate of potash had no effect; because, as he observes, if the upper surface of the leaf could be poisoned, the beetles might feed upon the under side with impunity. Powdered sulphur, snuff, asafœtida, &c., proved equally powerless. They retired from smelling salts, (carbonate of ammonia,) and died immediately on being exposed to the effluvia from it.

It will thus be seen that a large number of remedies have been proposed, but it would be difficult to point to one as being completely effectual. Many others have been and are being proposed, some of which might be well worth trying;

and if we be defeated in our endeavours to vanquish this insect enemy, (says Mr. Curtis,) we must take the field again with fresh vigour, until our efforts are crowned with success, and neither despair from disappointments, nor rest in listless security from the apparent inertness of our foes. If we look back for one instant to experience, we shall find that after violent attacks of disease in the animal, or of blights in the vegetable kingdoms, they are generally succeeded by a respite of many years, which throws us so much off our guard, that when they return we are not prepared with any proper remedies, and not unfrequently they are altogether forgotten; thus after a lengthened interval of tranquillity, when we think the hordes of hostile insects have departed for ever, they suddenly make their appearance, and take us by surprise and at advantage. The intelligent farmer must therefore be up and stirring, to detect the first breath of infection, and be instantly prepared with his remedy.

Hope, unyielding to despair,
Springs for ever fresh and fair;
Earth's sereenest prospects fly,
Hope's enchantments never die.
At fortune's frown, in evil hour,
Though honour, wealth, and friends depart,
She cannot drive, with all her power,
This lonely solace from the heart.
When virtue droops, as comforts fail,
And sore afflictions press the mind,
Sweet Hope prolongs her pleasing tale,
Till all the world again looks kind:
Round the good man's dying bed,
Were the wreck of nature spread,
Hope would set his spirit free,
Crying "Immortality!"—James Montgomery.

From what I have observed, and what I have heard those persons say whose professions lead them to the dying, I am induced to infer, that the fear of death is not common; and that, where it exists, it proceeds rather from a diseased or enfeebled mind, than from any principle in our nature. Certain it is, that among the poor the approach of dissolution is usually regarded with a quiet and natural composure, which it is consolatory to contemplate, and which is as far removed from the dead palsy of unbelief as it is from the delirious raptures of fanaticism. Theirs is a true unhesitating faith, and they are willing to lay down the burthen of a weary life, in the sure and certain hope of a blessed immortality.—Southey.

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HONG KONG

THE NEIGHBOURHOOD OF HONG KONG.

THE Portuguese town of Macao, which has long been falling into decay, has received its final blow by the establishment of the British settlement of Hong Kong. This new seat of our eastern commerce is noticed very favourably by the most competent judges.

Hong Kong forms the most northerly of the group of islands at the mouth of the estuary that leads to Canton. It is in lat. 22° 17′ N., and long. 114° 12′E. It is distant from Macao about thirty-five or forty miles, and from Canton about a hundred. The island is about eight miles in length, and from two to five in its greatest breadth. The strait which separates it from the mainland is, in some places, barely a mile in breadth, while at others it is five and six miles broad. The bay of Hong Kong is situated between the north-western extremity of the island and the mainland. The usual entrance is by the Lamma channel; but there is also a narrow and deep passage round the eastern end of Hong Kong, passing close to Cowloon. This bay cannot probably be surpassed by any in the world, not only by reason of the great number of ships which it can accommodate, but also of its safe anchorage, compared with any other harbour in China, and the depth of water close to the land, which along the greater part of the bay is sufficient for a seventy-four to float at a distance of a cable's length from the shore. From this circumstance alone, the island must prove a valuable commercial acquisition. The bay is formed by a high island, and the mainland about Cowloon, or properly Kowlung. In this name the word *Kow*, which commonly stands for nine, has the signification of winding or zig-zag, and applies to a winding range of hills upon the mainland, which fancy has likened to a dragon (*lung*), stretched in various curvatures upon the ground. Hong Kong is a corruption, or rather a provincial mode of pronouncing *Heang-keang, the fragrant stream*, that winds along the valleys, or tumbles gracefully over the shelving rocks in its passage to the sea.

The island abounds with magnificent granite quarries, so that warehouses on any scale can be built close to the water's edge, and wharfs easily thrown out, which will enable ships to approach for the purpose of loading and unloading. An abundant supply of fresh water is always to be procured. In other respects this new colony possesses but few advantages. Its northern side is formed by a connected ridge of mountains, the highest of which is about two thousand feet above the level of the sea. Except in a few spots, these mountains are barren and uncultivated, formed by black projecting masses of granite; the intervals giving shelter to herbage and brushwood. There are no fine trees; and, unlike the generality of mountainous districts, it possesses but few valleys, and these not of great extent. The mountains, for the most part, fall perpendicularly into the sea, thus leaving but little space for building at their base. The interior and south side is chiefly formed by level and undulating land, and appears to be far better adapted for private residences than the north side. Here, too, there are some very fine bays, the chief of which are Ty-tan and Chuck-pie-wan. At the former place a military

post has been established. The latter place, which is about five miles from Ty-tan, forms a very convenient and well-sheltered site for building dock-yards, &c. Partridge, quail, and snipe, have been found in the island; and in the jungle pheasants and deer have been seen.

When the English took possession of this island the population was not much above three thousand, but now it is said to amount to nearly fifteen thousand. The inhabitants are industrious and easily managed, and have changed their rulers without any marks of dissatisfaction.

The town of Cowloon is a small fortified Chinese position, situated opposite to the north-eastern extremity of Hong Kong, and across the bay. A considerable peninsula, but poorly occupied, extends from the town of Cowloon, in a south-easterly direction. This mostly consists of rich level ground, and would prove of inestimable value to us, were it to become an appendage to our present possessions. Dr. M'Pherson describes the appearance of Hong Kong as anything but prepossessing, and to those who have hitherto resided upon it, the climate has proved far from salubrious. There is much rank vegetation on the face of the hill, the ground on which, after a heavy fall of rain, becomes elastic and boggy. On the Cowloon side of the bay the atmosphere is at all times more pure, and the changes of temperature less sudden; indeed, altogether it appears a far more likely and preferable spot in which to form a settlement, than on the Hong Kong side. It had been decided that this peninsula was to be considered as neutral ground, but on the Chinese breach of faith, Cowloon was seized by the British and a garrison placed in Fort Victoria, where many commissariat and other stores were deposited.

Before we leave Hong Kong we may give a slight notice of its geological formation. In this island there is a stream and waterfall, near which the rocks are composed of basaltic trap, and exhibit in some places a distinct stratification, in others, an arrangement in columns. In general the islands which surround this part of the coast are of coarse granite only, with perpendicular veins of quartz. Vast rounded masses of the same kind of rock are scattered over the surface of these islands, and even exist on their highest eminences. These are commonly imbedded in coarse earth, which, washed away by the winter rains, leaves them without support, so that they roll down on all sides, and stud the sandy shores and shallows with a belt of rocks confusedly heaped together.

Mr. Lay gives a pleasing account of the inhabitants of the mainland near the harbour of Hong Kong. They are represented as being friendly to foreigners, not from motives of self-interest, but from real kindness of heart. In one of his visits to this place, Mr. Lay was accompanied by a surgeon who had been in the habit of dispensing advice and medicine gratuitously among the native population. They sauntered along the beach until they came to a cottage, when they rested for a few minutes on a seat outside the door, and requested the cottager to oblige them with a little water to allay their thirst. The good-nature and simplicity of the cottagers gave them pleasure, and soon they found a circle of the neighbours gathering round them. One of these recognised the surgeon, and being endowed with a natural share of elocution, forthwith introduced him to the company as the skilful and humane benefactor of the suffering Chinese.

A short time before this a woman of some standing and respectability at Cowloon, had applied to this gentleman for relief in a dropsical complaint, and being wisely anxious to ensure success, he invited her on board the *Hercules*, with one or two of her relatives. On board this ship the necessary operation was performed, and the patient nursed in a cabin by herself, amidst the attendance and comforts of the kindest hospitality, till her health was re-established, when she was allowed to return and share in the hearty congratulations of all her friends and neighbours.

Of this fact the assembled company were ignorant, until this man enlightened them on the subject, and at the same time displayed his own oratorical powers.

By way of preparation the orator laid down a bundle which he carried upon his back, and mounted a log of wood that lay at a most convenient distance for the purpose. He then, with a great deal of pantomimic effect, proceeded to describe the state of the patient when she visited the doctor, the manner which he received her, the nature and details of the operation she underwent, the tenderness and generosity with which she was nursed, and lastly, the joy of herself and friends at meeting after an event so unexpected and so propitious. The man had fully mastered his case, and seemed to be as anxious to state the matter accurately as he was to give to each circumstance the strongest emphasis he could lay upon it. We sat and looked on with interest and instruction; with interest, as we could not fail to be pleased at a recognition so honourable to the foreigner,—and with instruction, because we learned that a benevolent action is not regarded by the Chinese as a whole, but that every accidental, as well as every essential circumstance, is carefully noted, and as faithfully remembered.

During the same walk, Mr. Lay observed some granite-hewers at their work. He was invited to partake of their meal of rice, &c., with which they sipped from a very small teacup, undiluted *samshoo*, an ardent spirit. But their hale and cheerful countenances showed that they did not suffer any inconvenience from this practice, which this writer accounts for from the fact that they drink this hot spirit only with this meal, made up in part of fish and flesh, but chiefly of vegetables, which, according to a principle of Chinese cookery, had been well sodden in water.

Hence, though the arrack was neat when drunk, it underwent a liberal tempering with moisture after it had entered the general receptacle of life-supporting aliment. Those of our countrymen who cannot lay aside spirit-drinking, should take a hint from the Chinese labourer, and never use distilled liquors, except with, or immediately after a hearty meal.

Near the mainland of Cowloon, fragments of granite rock, of every kind of form and dimension, are found imbedded in sand, and so far apart from each other that they can be easily assailed by the hewer with his hammer and wedges. The process employed by the Chinese granite-hewers is thus described:—

In attempting the removal of a scantling from one of the natural blocks, the workman relies mainly upon the effect of percussion. He first draws a line by means of an inky thread, which he manages with his hand and foot without the help of a second person. After this line is delineated in conspicuous tints, he proceeds with hammer and chisel to make holes about a foot apart from each other along the course of the same. This is a tedious business, but not more so, perhaps, than every stone-cutter in this country meets with among the various processes of his work. When the holes are deep enough, he inserts a small wedge, which he knocks out by a single blow with a large iron beetle. This is repeated till he has passed from one end of the line to the other, three or four times in succession, when, to his surprise, the stranger sees the hard rock part asunder as if it were only a piece of limestone. After a block has been removed in this way, he cuts it up into slabs by a renewed application of the hard chisel and the iron hammer, the wedge, and the iron maul, or beetle.

These slabs require to be hewn and modelled after they have been conveyed to their destination. The hammer and blunt chisel are used in this operation. The temper of Chinese tools seems to be of little importance, and repeated grindings are unnecessary, inequalities being removed by a sort of bruising operation. The fragments which are broken off in hewing the granite rocks, are used as ballast for foreign ships, and also for native craft. These fragments are conveyed to the sea-side in a very primitive kind of wheel-barrow, the wheel of which is high, and the handles so wide apart that it requires "the utmost fathom of the arms to reach them."

The cataracts of Hong Kong, which seem to have given the name to the island, are formed by the water of a considerable stream, which falls down a series of ledges in its progress towards the sea. The principal cataract is about sixty feet in height, and stands at the termination of a valley, within a nook of the shore. The spot, according to Mr. Lay, has a strange but not unlovely appearance. The surface of the rocks near the waterfall exhibits an appearance like a rude piece of mosaic. At the top of the cataract the stream is delightfully fringed in many places with a variety of plants, and the loveliness of the vegetable kingdom contrasts pleasingly with the wild and deeply-riven passages through which the water flows. The waterfalls decrease in height and breadth as the traveller follows the windings and steep ascents which occur in the river's course.

In the course of his visits to Hong Kong Mr. Lay had frequent opportunities of noticing the admiration of the Chinese for the fair complexion of foreigners. This is a personal charm which they are themselves most anxious to possess, and therefore the gentlemen court the shade, and the ladies paint.

Among the visitors at the harbour of Hong Kong was the lady of a mercantile captain, who used occasionally to go ashore for the sake of that recreation which a walk over the hills and dales at eventide is sure to yield, when the parties have any taste for the beauties of nature. The sight of a foreign lady at this place was a great novelty, and attracted a crowd of spectators; but those who gazed with the deepest interest were the females, as if charmed with the honour which such an example of well-proportioned features and fair complexion conferred upon their own sex in general. On one occasion I saw this lady seated upon a grassy knoll of a little hill, with her baby in her arms, and surrounded by native women, who seemed to be in a trance of admiration at a spectacle so interesting.

On one of the islands near Hong Kong a curious mode of fishing attracted the attention of our traveller. A stage or apparatus is erected on a shelf of the rock, by which a net is raised or depressed at pleasure. A framework is secured for the accommodation of a windlass or barrel, on which the ropes are wound or unwound. The levers by which this windlass is turned, are fastened together so that each set resembles a wheel which the fisherman turns with his feet and his hands as he is seated on the beach. The ropes that wind round this barrel lead to stakes which are stuck in the mud at the bottom of the shallow sea, so that the weight of the net extended between them bows their heads below the surface of the water whenever these ropes are relaxed for that purpose. In this case the net is so far immersed that the fish can overpass its sides, and disport in the basin formed by the sinking down of the net in the middle. As soon as they find their motions obstructed by the meshes, they endeavour to make their escape by diving down into deeper water. This vain attempt only gives notice to the fisherman, who advances softly in a boat from beneath the cliff, while his companions begin to draw up the net so as to allow of his taking out the captured fish. He then retires to his hiding place, and the net is let down as before.

OBSERVATIONS ON BEES.

Passing through one of my orchards rather late in the evening, in the month of August, I observed that several bees passed by me in a direct line from the hives in my own garden, to those in the garden of a cottager, which was about a hundred yards distant from it. As it was considerably later in the evening, than the time when bees usually cease to labour, I concluded that something more than ordinary was going forwards.

Going first to my own garden and then to that of the cottager, I found a very considerable degree of bustle and agitation to prevail in one hive in each; every bee as it arrived, seemed to be stopped and questioned at the mouth of each hive; but I could not discover anything like actual resistance, or hostility, to take place, though I was much inclined to believe the intercourse to be hostile and predatory. The same kind of intercourse continued in a greater or less degree during eight succeeding days, and though I watched them very closely, nothing occurred to induce me to suppose that their intercourse was not of an amicable kind. On the tenth morning, however, their friendship ended, as sudden and violent friendships often do, in a quarrel, and they fought most furiously; and after this there was no more visiting.

I have some reason to believe that the kind of intercourse I have described, which I have often seen, and which is by no means uncommon, not unfrequently ends in a junction of the two swarms; for one instance, not many years ago, came under my observation, in which the labouring bees, under circumstances perfectly similar to those I have described, wholly disappeared, leaving the drones in peaceable possession of the hive, but without anything to live upon.

On the farm which I occupy there were formerly many old decayed trees, the cavities of which were frequently occupied by swarms of bees; and when these were destroyed a board was generally fitted to the aperture which had been made to extract the honey; and the cavity was thus prepared for the reception of another hive, on the ensuing season. Whenever a swarm came I constantly observed that about fourteen days previous to their arrival, a small number of bees, varying from twenty to fifty, were every day employed in examining, and apparently keeping possession of the cavity, for if molested they shewed evident signs of displeasure, though they never employed their stings in defending their proposed habitations.

Their examination was not confined to the cavity, but extended to the external parts of the tree above; and every dead knot particularly arrested their attention, as if they had been apprehensive of being injured by moisture, which this might admit into the cavity below; and they apparently did not leave any part of the bark near the cavity unexamined. It not unfrequently happened that swarms of my own bees took possession of these cavities, and such swarms were in several instances followed from my garden to the trees; and they were observed to deviate very little from the direct line between the one point and the other; which seems to indicate that those bees which had formerly acted as purveyors, now became guides.

It has been remarked, by Mr. John Hunter, that the matter which bees carry on their thighs is the farina of plants with which they feed their young, and not the substance with which they make their combs; and his statement is, I believe, perfectly correct: but I have observed that they will also carry other things on their thighs. I frequently covered the decorticated parts of trees, on which I was making experiments, with a cement, composed of bees'-wax and turpentine; and in the autumn I have observed a great number of bees employed in carrying off this substance. They detached it from the tree with their forceps, and the little portion thus obtained, was then transferred from the first to the second leg, by which it was deposited on the thigh of the third: the farina of plants is collected and transferred in the same manner.

This mixture of wax and turpentine did not, however, appear to have been employed in the formation of their combs; but only to attach the hive to the board on which it was placed, and to exclude other insects, and air during the winter. Whilst the bees were employed in the collection of this substance, I had many opportunities of observing the peaceful and patient disposition of them as individuals, which Mr. Hunter had also, in some measure, noticed. When one bee had collected its load, and was just prepared to take flight, another often came behind it, and despoiled it of all it collected. A second, and even a third load was collected, and lost in this manner, and still the patient insect pursued its labour, without betraying any symptoms of impatience or resentment.

[Thomas Andrew Knight. 1807.]

The disagreeable events, and the troubles, incident to human life, both wean us from an immoderate love of this world, and raise the hopes and desires to better objects, and soften the heart of man for the reception of the gentle affections, of affability, humanity, civility, pity, condescension, and officious kindness; and prevent or remove a certain narrow, selfish, and uncompassionate disposition, which often attends great health and a flow of prosperity.—Archdeacon Jortin.

EASY LESSONS ON REASONING.

LESSON IV.

§ 1. WE have seen that when an Argument is stated in the regular form, (as in the foregoing examples,) which is what is properly called a "Syllogism," the validity [or conclusiveness] of the reasoning is manifest from the mere form of the expression itself, without regard to the sense of the words: so that if letters, or other such arbitrary unmeaning Symbols, be substituted, the force of the argument will be not the less evident. Whenever this is not the case, the supposed argument is either sophistical and unreal, or else, may be reduced (without any alteration of its meaning) into the above form; in which form, the general Maxim that has been laid down will apply to it.

What is called an unsound [or fallacious] argument (that is, an *apparent*-argument which is in reality *none*) cannot, of course, be reduced into such a form. But when it is stated in the form most nearly approaching to this that is possible, and especially when unmeaning Symbols (such as Letters,) are substituted for words that have a meaning, its fallaciousness becomes evident from its want of conformity to the above Maxim.

§ 2. Let us take the example formerly given: Every criminal is deserving of punishment; this man is not a criminal; therefore he is not deserving of punishment: this, if stated in letters, would be "every X is Y; Z is not X; therefore Z is not Y." Here, the term ("Y,") "deserving of punishment" is affirmed universally of the Class (X) "criminal;" and it might therefore, according to the Maxim, be affirmed of anything comprehended under that Class: but in the instance before us, *nothing* is mentioned as comprehended under that Class; only "this man" ("Z") is *excluded* from that Class. And although what is affirmed of a whole Class may be *affirmed* of anything which that Class does contain, we are not authorised to *deny* it of whatever is *not* so contained. For it is evident that what is truly affirmed of a Class, may be applicable *not only* to that Class, but also to *other things* besides.

For instance, to say that "every tree is a vegetable" does not imply that "nothing else is a vegetable." And so also, to say that "every criminal is deserving of punishment," does not imply that "no others are deserving of punishment:" for however *true* this is, it *has not been asserted* in the proposition before us. And in analysing an argument we are to dismiss all consideration of what *might* have been asserted with truth, and to look only to what *actually* is laid down in the Premises.

It is evident therefore that such an apparent argument as the above does not comply with the Rule [or Maxim] laid down; nor can it be so stated as to comply with it; and it is consequently invalid.

§ 3. Again, let us take another of the examples formerly given; "All wise rulers endeavour to civilize the People; Alfred endeavoured to civilize the People; therefore he was a wise ruler." The parallel example to this, was, "All vegetables grow; an animal grows; therefore it is a vegetable." And each of these, if stated in Symbols, would stand thus "Y is X," [or the thing denoted by Y is comprehended under the Class for which X stands] "Z is X; therefore Z is Y."

Now in such an example, the quality of "growing" [X] is, in one Premise, affirmed universally of "vegetable," ["Y"] and it *might* therefore have been affirmed of anything that can be referred to the Class of "vegetable" as comprehended therein: but then, there is *nothing* referred to that Class, in the other Premise; only the same thing which had been affirmed of the Class "vegetable," is again affirmed of another Class, "animals;" (Z) whence nothing can be inferred.

Again, take such an instance as this; "food is necessary to life; corn is food; therefore corn is necessary to life." Here, "necessary to life" is affirmed of "food," but not *universally*; for every one would understand you to be speaking not of "*all* food," but of "*some* food," as being "necessary to life." So that, expressed in Symbols, the apparent-argument would stand thus: "Some X is Y; Z is X; therefore Z is Y;" in which you may see that the Rule has not been complied with; since that which has been affirmed not of the *whole* of a certain Class, [or, not *universally*] but only of *part* of it, cannot on that ground be affirmed of whatever is contained under that Class.

§ 4. There is an argument against miracles by the well-known Mr. Hume, which has perplexed many persons, and which exactly corresponds to the above. It may be stated thus: "Testimony is a kind of evidence more likely to be false, than a miracle to be true;" (or, as it may be expressed in other words, we have more reason to expect that a witness should lie, than that a miracle should occur) "the evidence on which the Christian miracles are believed, is testimony; therefore the evidence on which the Christian miracles are believed is more likely to be false than a miracle to be true."

Here it is evident that what is spoken of in the first of these Premises, is, "*some* testimony;" not "all testimony;" [or *any whatever*,] so that this apparent-argument has exactly the same fault as the one above. And you are to observe that it makes no difference (as to the point now before us) whether the word "*some*" be employed, or a different word, such as "*most*" or "many," if it be in any way said or implied that you are *not* speaking of "*all*." For instance, "*most* birds can fly; and an ostrich is a bird," proves nothing.

§ 5. In order to understand the more clearly, and to describe the more accurately, the fallaciousness of such seeming-arguments as those of which we have just given examples, and also, the conclusiveness of the sound arguments, it will be necessary to explain some technical words and phrases which are usually employed for that purpose. This is no less needful (as was remarked in Lesson i.) than for an Artisan to have certain fixed and suitable names for the several instruments he works with, and the operations he performs.

The word "*Proposition*," (which we have already had occasion to use) signifies "a Sentence in which something is *said*—[or predicated]—that is, *affirmed* or *denied*—of another." That which is spoken of, is called the "*Subject*" of the proposition; and that which is said of it, is called the "*Predicate*;" and these two are called the "*Terms*" of the Proposition; from their being (in natural order) the *extremes* [or boundaries] of it.

You are to observe that it matters not whether each of these Terms consist of *one word*, or of several. For whether a Proposition be short or long, there must always be in it, *one*—and but one—thing of which you are speaking; which is called (as has been just said) the Subject of it: and there must be (in any *one* Proposition) one thing,—and only one—that is affirmed or denied of that Subject: and this, which we thus affirm or deny of the other, is called—whether it be one word or more—the Predicate.

§ 6. You are to observe also that tho', (in our language) the Subject is usually placed *first*, this order is not at all essential. For instance, "it is wholesome to rise early," or "to rise early is wholesome," or "rising early is wholesome," are only three ways of expressing the same Proposition. In each of these expressions, "rising early," (or "to rise early," for these are only two forms of the Infinitive) is what you are speaking of; and "wholesome" is what you say [or *predicate*] of it.

When we state a proposition in *arbitrary Symbols*, as "X is Y," it is understood that the first term ("X") stands for the Subject, and the last ("Y") for the Predicate. But when we use terms that are *significant*, [or, have a meaning] we must judge by the *sense* of the

words *which* it is that is the Subject, and which, the Predicate; that is, we must ask ourselves the question "What am I speaking of? and what am I saying of it."

For instance, "Great is Diana of the Ephesians;" here "great" is evidently the Predicate. Again "Thou art the man;" and "Thou hast given occasion to the enemies of the Lord to blaspheme;" by asking yourself the above question, you will perceive, that, in the former of these examples, "Thou" is the Predicate, and in the latter, the Subject.

§ 7. That which expresses the affirmation or denial, is called the "*Copula*." For instance, if I say "X is Y," or "X is not Y," in each of these examples, "X" is the Subject, and "Y," the Predicate; and the Copula is the word "*is*," in the one, and "is not," in the other.

And so it is, in sense, tho' not always in expression, in every Proposition. For either the Affirmative-copula, "is," or the Negative-copula, "is not," must be always, in every Proposition, either expressed in those words, or implied in some other expression.

Any Sentence which does not do this—in short, which does not *affirm or deny*—is not a *Proposition*. For instance, of these sentences, "are your brothers gone to school?" "they are not gone;" "let them go," the second alone is a Proposition; [or "Assertion"] the first being a *Question*, and the last a *Command*, or Request.

MAUNDAY THURSDAY.

On the day before Good Friday, usually called Shere, or Maunday Thursday, it was a custom both in this and other countries, for the kings and queens, persons of high estate, and abbots of religious houses, to perform their Maunday; that is, to wash the feet of a certain number of poor people, frequently *twelve*, in imitation of our Saviour washing the feet of his disciples. The kings and queens of England, indeed, increased the number, and usually washed the feet of as many persons either as they themselves were years old, or had reigned. They afterwards gave them meat, clothing, and a little bag of small money.

King James the Second was the last of our kings who washed the feet of the poor people in person. The author of *Le Guide de Londres pour les Etrangers*, 1693, informs us that King William the Third was the first of our sovereigns who deputed the performance of this ceremony to his almoner. From the Earl of Northumberland's *Household Book*, began in 1512, we find that he kept his Maunday, if at home, for as many poor men as he was years of age. Wolsey also, in 1530, performed the same ceremony at the Abbey of Peterborough, while on his journey to the north. "Upon Palme Sunday," says Cavendish, "he bare his palme, and went in procession with the monks, setting forth the divine service right honorably, with such singing men as he then had there of his own. And upon Maunday Thursday he had his Maunday there, in our Lady's Chapel, having *fifty-nine* poor men whose feet he washed and kissed; and after he had wiped them, he gave every one of the said poor men twelve pence in money, three ells of good canvass to make them shirts, a pair of new shoes, a cast of red herrings, and three white herrings; and one of these had two shillings."

It may not be quite unconnected with the subject to state that the Maunday is likewise used at the present day in the Greek Church. Dr. E. D. Clarke, in his *Travels in Russia*, says, "The second grand ceremony of this season takes place on Thursday before Easter, at noon, when the Archbishop of Moscow washes the feet of the apostles. This we also witnessed. The priests appeared in their most gorgeous apparel. Twelve monks, designed to represent the twelve apostles, were placed in a semicircle before the archbishop. The ceremony is performed in the Cathedral, which is crowded with spectators. The archbishop, performing all, and much more, than is related of our Saviour in the 13th chapter of St. John, takes off his robes, girds up his loins with a towel, and proceeds to wash the feet of them all, until he comes to the representative of St. Peter, who rises; and the same interlocution takes place as between our Saviour and that Apostle."—Ellis's *Original Letters*.

LETTERS TO THE READER.

No. VI.

My dear Reader,

The poet says that "Heaven lies about us in our infancy." Blessed parents, indeed, strove through years of care to make my early home an earthly heaven, by calming the strife of tongues—by the self-sacrifice of unselfishness,—by denying my hurtful wants,—by teaching love with love,—by associating pleasure with the visible creation, and peace with moral beauty. But does every British child enjoy an equal blessing? The holy training of my childhood—did I owe it to the intelligent piety of my parents, or to the institutions of the land? In part to both. Conviction of the all-important value of these conditions leads to the desire of widening their field of action.

A recent *Report upon the Physical and Moral Condition of the Children and Young Persons employed in Mines and Manufactures*, informs us that thousands of children in "Christian England" are altogether without the means of instruction; that their tender bodies are exposed to unheard-of hardships; that their minds contain fewer ideas than perhaps the human mind was ever known to possess except in idiotcy; that their spiritual faculties and affections are subservient to this mental ignorance and physical degradation! This is a national disgrace more truly humiliating than defeat in war; but any expressions of sorrow must be weak compared with the force of the facts themselves. I will, therefore, present you with an abridgment of the official *Report*, classing as follows the principal statements which is contains:—

Depressed state of Children and Young Persons employed in British Mines and Manufactures, considered with respect to their	*physical* conditions of	employment, food, clothing, dwellings, cleanliness.
	mental poverty of ideas concerning	numbers, places, persons, Christianity
	moral relations of	parents, companions, government, religious institutions.

Employment commences at a tender age. Instances occur in which children, in several districts female children, are taken into the coal-mines to work as early as at the age of five. From eight to nine is, however, the ordinary age; but a very large proportion of the persons thus engaged is under thirteen years. At the calcining furnaces of copper-works, in South Wales, both boys and girls regularly work with the men twenty-four hours consecutively, on alternate days, without excepting Sunday. This labour is sometimes extended to thirty-six, and even to forty-eight hours. In trades and manufactures, children, in some cases, begin to work when only three and four years old; not unfrequently at five, and are generally in regular employment between seven and eight. Female children are hired out almost equally with boys, and at the same tender ages. The growth of both becomes stunted. Lads of fifteen and sixteen years of age are no larger than ordinary English school-boys, and not so strong and healthy. Moreover, this early servitude involves the necessary neglect of almost all intellectual and religious culture.

The labour is excessive. That of the youngest colliers begins at day-break, when they enter the mine, which they are not allowed to leave till night. Sometimes they remain in darkness and solitude during the whole time they are in the pit, and many of them do not see the light of day for weeks together, during the greater part of the winter season, except on holidays and Sundays. From six years, and upwards, the hard work of pushing and dragging the carriages begins. Both

sexes are set to the same kind of labour for an equal number of hours. In the east of Scotland a much larger proportion of children and young persons are employed in the coal mines than in other districts; many of these are girls, and the chief part of their labour consists in carrying the coals, on their backs, up steep ladders. Their daily full employment is rarely less than eleven hours, more frequently twelve, and sometimes even more. In the majority of these mines night-work is part of the ordinary system of labour. No regular time is set apart either for meals or rest.

In the operations connected with blast furnaces for reducing the ores of iron, the children invariably work at night during alternate weeks, and continue at work, without any interruption whatever, for four and twenty hours during every other Sunday.

In mines in Derbyshire, the hours of work are commonly fourteen, and are sometimes extended to sixteen, out of the twenty-four. The poor boys complain of great fatigue. John Hawkins, aged eight, "never wants to play." George Pollard "is always too tired to play." Aaron Chambers, aged eleven, "never plays from one week's end to another; he is too tired without play." The state of children in the Yorkshire mines is told almost in the same words. "I wish," said the parent of some young North Lancashire colliers, "you could see them come in, they come as tired as dogs, and throw themselves on the ground like dogs; we cannot get them to bed." Sometimes the powers of the body are so exhausted, that the stomach has no strength left for digestion, and food is constantly rejected. The tender and feeble powers of girls and boys of eight years old, and under, are taxed to the extreme in the coal mines of East Scotland; "it takes away the desire for food, as it is o'er sair."

In trades and manufactures the regular hours of work, done by children and young persons, in some few instances, does not exceed ten, but more commonly they are twelve, and often fifteen, sixteen, and even eighteen hours consecutively. In almost every instance they work as long as the adults. In "winding" for lace machines, there is no regular time set apart either for sleep or recreation. The young Scotch nail-makers are described as infant slaves, who evince the nature of their toil by their emaciated looks and stunted growth; clad in apparel, which few paupers would be found begging in; without even a change of rags, and starved into quickness, by receiving their meals in proportion to work done.

The severity of the labour, the almost constant night-work, the short intervals for sleep, the irregular meal-hours, and the intense heat of the place of work, render the occupation of glass-making extremely injurious to children. The hottest department of the glass-house varies in temperature from 300° to 330° Fahrenheit; that of boiling water being 212°.

Evils incidental to employments. Many of the subterranean passages in coal mines are so small, that even the youngest children can only crawl along them on hands and feet. In this unnatural position they drag loaded carriages after them. The ventilation and drainage of many mines are lamentably defective. The state of the iron-stone pits, in these respects, is inferior to coal mines.

Where "fire damp" prevails in mines, the air is unfit for respiration. Carbonic acid gas exists, in considerable quantities, in the lead mines of Alston Moor. This, together with the gases which are formed during the blasting of the rock by gunpowder, make the atmosphere almost irrespirable by a stranger.

The children employed in the potteries suffer from the excessive labour of lifting up large lumps of clay and throwing them down forcibly on a hard surface, to free the clay from air, and render it compact. With scarcely an exception, these young workers are pale, thin, stunted in growth, weak, and otherwise unhealthy. They have also to dip the ware in a liquor containing large quantities of lead, and frequently arsenic. The hands being constantly wet with this solution, absorption takes place, and slow poisoning ensues.

The unhealthy conditions of the glass-house have been noticed above. The nature of the occupation of making lace by machinery, is stated to be exceedingly injurious to children. The constrained position and stooping of the body, cramps the chest and stunts the growth. At one part of the process called "lace running" they frequently faint whilst at work, and become totally unfitted for even common household duties.

Food. The exhausting employment of collier children does not always bring with it even a sufficient supply of food. They are often pinched at the end of the week. James Taylor, a poor boy, unconsciously describes the state of but too many like himself.

He used to take his dinner down with him *when he had any.* and eat it as he could, working. Many a time has gone without both breakfast and dinner altogether, and felt sick like and mazy. His mother has now't (nothing) to give him, because she could na' get now't. Hur (she) said if hur could get a bit for him, hur would do; but his father, who was a collier, *drank a good deal of his wages.* Oftener went to the night-set without his butter cakes, than with them, and felt sick and mazy then. Has porridge and treacle to breakfast *when he has any;* bread and butter cakes to dinner *if he can get them;* and porridge and milk when he comes home; *never any potatoes, or any bread, but what is in his bread and butter cakes.*

The children who work at Leadhills, Scotland, scarcely ever touch flesh-meat. So small is the consumption of animal food, that there is no butcher in the place. The insufficient time allowed for the meals of growing children, employed in mines and manufactories, is an evil of the greatest magnitude. The long and irregular hours of work of the Nottingham, Derby, and Leicester lace-makers, deprives them of their meal-time. Besides which their food is only bread and tea. They pass one and two months together without tasting animal food. With some exceptions, the food of young milliners is coarse in quality and insufficient in quantity. Where a sufficient supply of solid food cannot be obtained, a delusive comfort is sought for in the stimulus of tea.

The Birmingham children are in a deplorable state as to food and clothing. At Wolverhampton the young people are often fed upon bad meat. There are butchers who deal exclusively in diseased meat; horse flesh is sold for beef steaks, and bad fish is purchased cheap, as a treat for the apprentices.

The clothing of the collier children of Lancashire and Cheshire, is often rags in a disgusting state of dirt. Few of them have any dress but that used by the mines, and are therefore ashamed to attend either a school or public worship. Only one out of all the children examined at Warrington, had a suit of Sunday clothes. The Irish colliers are said to change their clothes only once a week. The children engaged in manufactures at Wolverhampton are miserably clad. No constant difference is made between winter and summer clothing. Of the children belonging to the tobacco manufactures in Scotland, it is said that nakedness, hunger, shortness of stature, filth, scrofulous tumours, all combine to render their youth the prelude to a vicious and wretched manhood.

The dwellings of the miners are but too often deficient in neatness and cleanliness; but much of this is caused by the bad construction of their cottages. Few subjects are more important to the health and comfort of a working population, than the situation, structure, and drainage of their houses. Those attached to the Hirwain works, South Wales, are mere mud cabins, in many instances a deserted cow-shed converted into a human habitation. They are built in hollows to avoid the wind, and thus receive the drainage from surrounding lands. Even the

school more resembles a stable than a place for education, and is almost surrounded with a ditch of dirty water. In Lancashire and Cheshire, the colliers' houses are usually filthy. No attention is paid to whitewashing, or ventilation. The beds and bedding are generally poor. The windows are badly kept, not cleaned, and paper and rags often stuffed into broken panes.

The "lodging shops" for miners, which are common in some parts of the Alston Moor district, are close, crowded, and filthy beyond description. One room, eighteen feet by fifteen, contained fourteen beds. Seven of these beds were supported immediately over the other seven, and each, at times, receives two men and a boy. The boy lies across the foot of the bed. There were blankets, but no sheets. No opening whatever was contrived for the exit of foul air. The beds were stuffed with chaff.

Fever, when once in a North Welsh collier's house, generally runs through the family, and in crowded villages, through all the families. This is ascribed to the smallness of the cottages, the want of ventilation, the total neglect of external cleanliness and drainage; the floors being on a level with the ground, and the pigsty and dunghill close to the door.

The wretchedness of the dwellings of the manufacturers at Sedgely is almost unparalleled. Birmingham enjoys an extraordinary freedom from fever, because its soil is favourable for drainage, and each poor family has for the most part, a distinct, and usually comfortable dwelling.

Cleanliness. Much improvement has taken place in this respect during the past few years: but something yet remains to be done. The squalid aspects of the homes and persons of the colliers of East Scotland bespeak a population neglected and abandoned to a course of life which has blunted the commonest principles of human comfort. In parts of Wolverhampton a want of cleanliness is an obvious and constant source of disease.

None of the drawers (said a drawer of coal from the Lancashire and Cheshire district) ever wash their bodies. I never wash my body. I let my shirt rub the dirt off. My shirt will show that. I wash my neck, and ears, and face, of course. My sisters never wash themselves. When a collier is in full dress he has white stockings, low shoes, and very tall shirt-neck, very stiffly starched, and ruffles; but they never wash their bodies underneath. Their legs and bodies are as black as your hat.

It is not considered worth while to wash over-night what is to be dirtied again in the morning.

Such are the main physical conditions against which some thousands of English children are at present struggling. It remains for me to trace the effects of these upon them in after life, as well as to describe the state of their intellectual and moral relations. It would be impossible for me to do justice to these details in the present letter; but the following number of the *Saturday Magazine* shall contain the remainder of the subject.

Believe me still your sincere well-wisher, F.

WHAT though at birth we bring with us the seed
Of sin, a mortal taint,—in heart and will
Too surely felt, too plainly shown in deed,—
Our fatal heritage; yet are we still
The children of the All Merciful; and ill
They teach, who tell us that from hence must flow
God's wrath, and then his justice to fulfil,
Death everlasting, never-ending woe:
O miserable lot of man, if it were so!
Falsely and impiously teach they who thus
Our heavenly Father's holy will misread!
In bounty hath the Lord created us,
In love redeemed. From this authentic creed
Let no bewildering sophistry impede
The heart's entire assent, for God is good.
Hold firm this faith, and, in whatever need,
Doubt not but thou wilt find thy soul endued
With all sufficing strength of heavenly fortitude.

SOUTHEY.

ON THE HOUSELEEK.

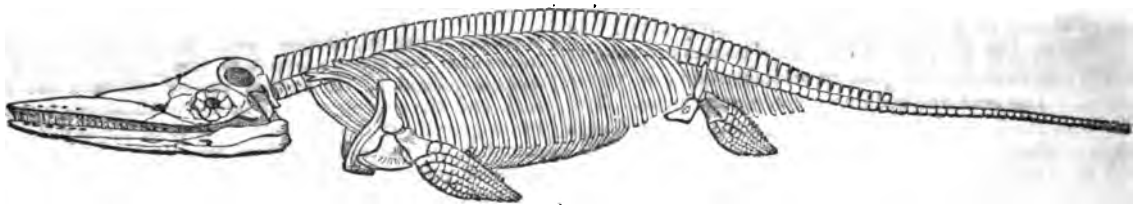
NATURE, whose slightest works cannot be viewed without instruction, has given a lesson in this plant worthy of the deepest reflection. It teaches us, by selecting the bare rock and the sloping roofs of houses as situations favorable to the growth of this vegetable, not to repine at our lot, or complain of the soil in which we are thrown; for the *houseleek* gathers its nourishment where other plants would find none, and maintains the cooling quality of its pulpy leaves on the burning tiles of our buildings. The lesson is also applicable to the agriculturist. It tells him to seek vegetation suitable to his soil, rather than complain of the earth he cannot change. The heavy clay that produces such excellent wheat would yield a watery potato, a root more delicious when grown in sandy ground, where breadcorn would fail of coming to perfection for want of nourishment.

> Find out the nature of the mould with care,
> And what is proper for each soil to bear.—VIRGIL'S *Georgics.*

The houseleek gives but little trouble in its cultivation. Every cottager who has a cover for his head, has a bed for this plant, and after it is once planted in mud or strong earth, and placed on a wall or the shelving of his dwelling, it will continue to thrive. It will increase rapidly by offsets, each of which forms a kind of green rose, and throws out, at maturity, a stem resembling a palm-tree in miniature, from the top of which spring star-shaped flowers worthy the inspection of either the florist or the botanist.—PHILLIPS.

THE BATHS AT CARLSBAD.

WERE it not for the fatigue attendant on so early a commencement of the labours of the day, the morning promenades would be highly agreeable and amusing. Here were all ages, and ranks, and kindreds, and nations; and many a sovereign prince, not creating nor subjected to the formalities of Töplitz, but presenting his cup, as best he might, to the youthful naiads of the fountain. Some few servants in livery might be seen, especially about the Muhlbrunn, conveying to and fro the cups of their ladies; but this was a matter of necessity rather than of choice, so dense was the crowd which generally surrounded the favoured source. The physicians flitted about from patient to patient on the walks; and people met each other, and formed a kind of temporary intimacy as they compared the results of their respective experiences; and idled away the intervening periods between the potations in wandering from spring to spring, or strolling about the gardens of the Theresienbrun, or in perambulating the long covered colonnade above the Tepel, to the sound of the splendid harmonies of Beethoven and Mozart. Except the English, who are always behind-hand when early hours are imposed, very few stragglers were seen about the springs later than eight o'clock. Exercise must then be taken for an hour, in order to "digest the waters;" after which I always found myself in excellent disposition for breakfast and repose. The scene from our windows on the Wiese was at this time delightful. A sort of fashion prevails of breakfasting in the open air; and groups of ladies and children, the inmates of the neighbouring houses, were assembled to take their tea or coffee around tables spread beneath the trees. The Grand Duchess Helena was very fond of this sort of rural ease; and always, when the weather permitted, we might see her thus engaged, with her three young daughters and her two brothers, the Princes of Würtemberg, while the Grand Duke strolled up and down, occasionally joining his family. After the breakfasts, the work-box would sometimes be brought; and ladies would pay their visits from table to table, and exchange a greeting with their passing friends. Two is the hour for dinner. Some may dine at one and some at three, but the usual time is two; an hour which I always found to arrive far too soon after breakfast. There are no tables d'hôte; or, if there be any, they are attended only by the inferior classes of visiters. The generality of persons dine *à la carte*, individually or in parties, at some one of the numerous hotels and restaurants; and one of these, the Salle de Saxe—a spacious saloon at the extremity of the Wiese, and which serves for the purposes also of balls and evening assemblies—is then crowded to excess. This is the principal and most expensive place of fashionable resort; yet here, at the price of one florin, (two shillings,) a good dinner is provided.—TURNBULL'S *Austria.*



THE ICHTHYOSAURUS, OR FISH LIZARD.

As many of our readers have no opportunity of seeing the fossil remains of this gigantic reptile, we intend giving a brief description of it, but, before doing so, it may be necessary to explain the meaning of the term *fossil*. The word is derived from the Latin verb *fosseo*, "to dig," and formerly signified anything dug out of the earth: minerals and organic remains were alike called fossils, the latter being distinguished as *extraneous* fossils.

Organic remains were also known as PETRIFACTIONS, from two Latin words signifying *a conversion into stone*, but the term *fossil* is now generally applied to those remains of animals and plants that are found imbedded in the earth, the pores of some of which have been so penetrated by earthy or stony substances, that the consistence appears to be entirely changed, while others are preserved almost in their natural state; an instance of which occurred some years ago, when a lily *encrinite*, an extinct species of zoophyte resembling a lily resting on its stalk, was found imbedded in a limestone rock, with the flesh adhering to its bones. These fossils are supposed to have existed at a very remote period, which supposition is supported by the fact, that many of those found in the lower *strata*, or beds of earth, have not now a single living representative.

Among these is the ICHTHYOSAURUS, which derives its name from the Greek words, *ichthys*, a fish, and *saurus*, a lizard. This extraordinary creature greatly resembled the lizard tribe, partaking at the same time of the nature of a fish. Seven species have been found, all of great size, the largest being upwards of forty feet in length. Its snout resembled that of a porpoise, its head was like the lizard's, having two long slender jaws, each furnished with upwards of eighty sharp conical teeth, shaped like those of the crocodile; while the cavity for the eye, in some specimens, exceeded fourteen inches in diameter. The head of an ichthyosaurus, formerly in the possession of a gentleman at Bristol, measured ten feet in length; being joined to the body by a very short neck. The body was arranged on a long spinal column, composed of more than one hundred *vertebræ*, or joints, similar to those of a fish, to which a quantity of ribs were attached, and terminating in a long broad tail, which, it is conjectured, possessed great strength. Instead of the feet with which the lizard and crocodile are furnished, the ichthyosaurus had four paddles, resembling those of the whale, which enabled it to move through the water in the manner of that animal; the breast-bone and fore paddles were similar to those of the ornithorynchus, or water mole, an aquatic quadruped found in New Holland, which enabled it to descend to the bottom of the water in search of food. Thus, it will be seen, the ichthyosaurus presented a most singular combination of forms: it had the snout of a porpoise, the teeth of a crocodile, the head of a lizard, vertebræ like a fish, the breast-bone of the ornithorynchus, and the paddles of a whale.

As the form of the vertebræ by which it is associated with the class of fishes, seems to have been introduced for the purpose of giving rapid motion in the water to a lizard inhabiting the element of fishes, so the further adoption of a structure in the legs, resembling the paddles of a whale, was superadded, in order to convert these extremities into powerful fins. The still further addition of a furcula and clavicles, like those of the ornithorynchus, offers a third and not less striking example of selection of contrivances, to enable animals of one class to live in the element of another class[a].

A most important discovery was made, some years ago, at Lyme Regis, by Professor Buckland. He had frequently observed numerous stony bodies, resembling kidney potatoes, lying near the remains of the ichthyosaurus, which, upon close examination, were found to be the refuse of that animal, petrified as hard as the most compact marble. These bodies, which the learned Professor has called *coprolites*, from *kopros*, dung, and *lithos*, a stone, were found to contain the scales, teeth, and bones of fishes, which appeared to have passed undigested through the body, similar to the fragments of bones that are found undigested in the refuse of the ravenous *hyæna*. Dr. Buckland also found in one of these stones the vertebræ of an ichthyosaurus which he calculates must have been four feet in length at least: thus showing that these remarkable creatures not only preyed upon their weaker neighbours, but actually devoured the smaller individuals of their own kind.

In all these various formations (says Dr. Buckland) the coprolites form records of warfare waged by successive generations of inhabitants of our planet on one another, and the general law of nature, which bids all to eat and to be eaten in their turn, is shown to have been co-extensive with animal existence upon our globe, the *carnivora* in each period of the world's history, fulfilling their destined office to check excess in the progress of life, and maintain the balance of creation.

We have thus obtained a distinct idea of the nature of a very important part of the bodily economy of this long extinct race of animals. Remains of the ichthyosaurus have been found in all the *strata* called by geologists, the *secondary formation*, but are more frequently met with in the Lias limestone, at Lyme Regis in Dorsetshire.

We would recommend those of our readers who have an opportunity, to visit the British Museum, where they will see specimens of the ichthyosaurus as they were found imbedded in limestone; but to those who cannot spare the time, this brief account may serve to convey an idea of this curious relic of a former period, which so highly illustrates the handy works of that ALL-POWERFUL BEING who "made heaven and earth, the seas, and all that in them is." J. G. C.

[a] BUCKLAND'S *Bridgewater Treatise*, Vol. I., p. 187.

THE defects of the older steed may be compensated by the energies of the young rider, whereas the violence of the young horse requires to be moderated by the cold temper of the older.—WALTER SCOTT.

WHOEVER would proceed in the right path, must be attentive to the dangers on each side.—ARCHBISHOP SECKER.

THE approach of the parting hour is saddening, and the thoughts which in happier moments we give to the tongue, the heart refuses to part with then.—LOVER.

JOHN W. PARKER, PUBLISHER, WEST STRAND, LONDON.

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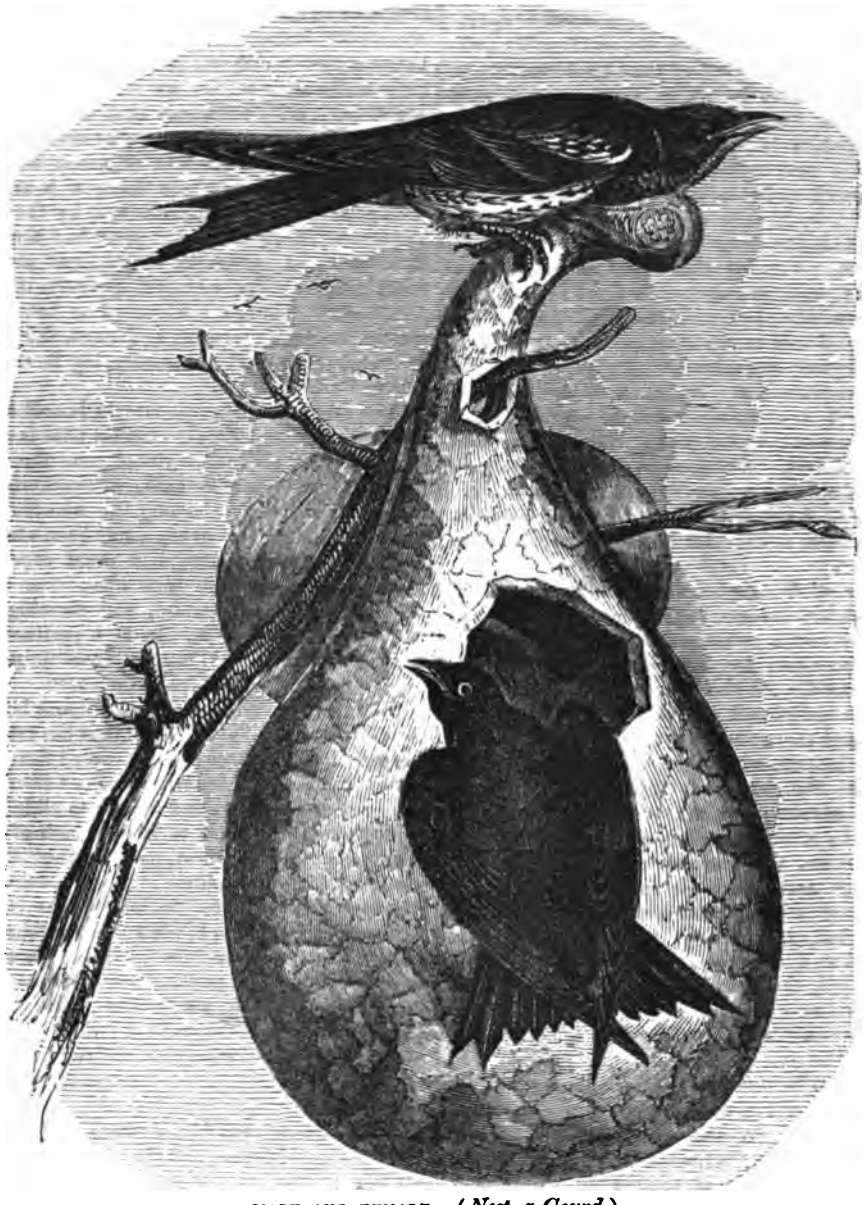
THE PURPLE MARTIN.



MALE AND FEMALE. (*Nest, a Gourd.*)

With the inhabitants of the United States, the martin is a greater favourite than even with us. We all like to hear the twittering of the martin on the eaves of our houses, as he comes in the early Spring to seek a fit place for his nest, and many of us take a great interest in watching the proceedings of the bird, as he sets about his task with so much patience and ingenuity, working incessantly at those hours of the day, when his plaster-work will dry slowly, and give stability to the dwelling, and patiently waiting during the warmth of noon-tide, lest the work, drying too quickly, should be insecure, and crumble away. There is even a superstitious veneration for the bird in some parts of this country; the inmates of our cottages hail the arrival of the martin, and consider themselves lucky, if he chooses their roof for his abode, because they say, the house where the martin builds his nest will never be destroyed by fire.

But we are not aware, that regard for this bird has ever shown itself here, in the same way that it is manifested among our American brethren. Among them, not only are birds of a similar kind encouraged to build on the roofs of their dwellings, but all the cities are furnished with martin-boxes, or houses for their especial reception. These houses are held in a manner sacred, and it is very seldom that even lads, bent on mischief, think of disturbing the favoured martin. Almost every country-

tavern has one of these martin-boxes, fixed on the upper part of the sign board, and Audubon, the American ornithologist, says he has observed that the handsomer the box, the better does the inn generally prove to be.

This admirable writer gives an amusing instance of the pertinacity with which these birds maintain their rights, when they have once chosen a place to build in. He tells us that he had a large and commodious house built, and fixed on a pole, for the reception of martins, in an inclosure near his house, where for some years several pairs reared their young. One winter he also put up some smaller boxes, with a view to invite blue-birds to build nests in them. The martins arrived in the Spring, and taking a fancy to these smaller apartments, turned out the lovely blue-birds, and forcibly took possession of their abode. One of the blue-birds fought vigorously for his home, in which there was a nest nearly finished, but the more powerful blows of the martin compelled him to give way. The vanquished blue-bird from this time took every opportunity to annoy the usurper, as much as lay in his power, but the martin was little affected by it, only showing his head at the entrance of the box, and retorting with accents of exultation and insult. Viewing this unjust procedure, the owner of the box thought it time to interfere; he mounted the tree to which the box was fastened, caught the martin, and clipped his tail with scissors, in the hope that such mortifying punishment might make him retreat to his own tenement. No such thing; as soon as he was launched into the air, he rushed back to the box. The experiment was repeated, but the desired effect was not produced. Audubon seeing that the pertinacious martin kept the box in spite of all his wishes that he should give it up, seized him in anger and disposed of him in such a way that he never returned to the neighbourhood.

This harbinger of Spring seems perfectly devoid of fear in his approach to human habitations; he sets about his nest with the air of a privileged bird, and if no fitting habitations are provided for him, he is not long in providing for himself. At the house of a gentleman of Louisiana, some martins took possession of sundry holes in the cornices, and there reared their young for several years, until the insects, which they introduced to the dwelling, induced the owner to think of a reform. Carpenters were employed to clean the place, and close up the apertures by which the birds entered the cornice. When this was done, the martins seemed in despair: they brought twigs and other materials, and began to form nests wherever a hole could be found in any part of the building; but they were so perseveringly chased off, that after repeated attempts, the season being in the mean time advanced, they were forced away, and betook themselves to some woodpecker's holes, on the dead trees about the plantation. The next Spring a house was built for them in the usual manner.

The arrival of this bird appears to be welcomed by all classes, and his early notes, though not very melodious, are the signal to industry, and the harbinger of fine weather. The farmer and the husbandman rise to renew their labours at the twittering of the martin, whose note is heard before that of all other birds. According to Audubon, the Indian is also fond of the martin's company, and hangs up a calabash on some twig near his camp, and in this cradle the bird keeps watch, and sallies forth to drive off the vulture that might otherwise commit depredations on the deer skins, or pieces of venison exposed to the air to be dried. The humbled slave of the Southern States takes pains to accommodate this favourite bird.

The calabash is neatly scooped out, and attached to the flexible top of a cane, brought from the swamp, where that plant usually grows, and placed close to his hut. It is alas! to him a mere memento of the freedom which he once enjoyed; and, at the sound of the horn which calls him to his labour, as he bids farewell to the martin, he cannot help thinking how happy he should be, were he permitted to gambol and enjoy himself day after day, with as much liberty as that bird.

The purple martin begins to prepare its nest about the middle, or twentieth of April. The materials are generally dry leaves, slender straws, hay, and feathers in considerable quantity. The eggs are from four to six, and of a pure white. Two broods appear during the season: the first in May, the second late in July. While the female is laying, and before incubation commences, both birds are away from the nest the greater part of the day; but when the female is sitting, the male is very attentive to her, and occupies her place when she goes abroad for recreation. He sits on the outside of the house dressing and arranging his plumage, but frequently goes to the door of her apartment, as if to inquire how she does. Wilson notices that his notes seem at this time to have assumed a peculiar softness, and his congratulations are expressive of much tenderness. Conjugal fidelity, even where there is a number together, seems to be faithfully preserved by these birds. The same accurate observer has described the purple martin as being eight inches in length, and sixteen inches in extent, having the principal portions of his body of a rich and deep purplish blue. The bill of this bird is strong, the legs are short and stout, the tail consists of twelve feathers and is considerably forked, the eyes are full and dark.

The flight of the purple martin has all the gracefulness and rapidity for which the swallow tribe is remarkable. At one time it is skimming along near the surface of the ground, in search of insects; at another, it is mounting aloft, and disporting among the clouds. When flying over a large lake or river, it has been observed to bathe and drink on the wing, with great expertness. When intending to drink, it sails close over the water, with both wings greatly raised, and forming a very acute angle with each other. In this position it lowers the head, and dips the bill several times in quick succession, swallowing at each time a little water.

Audubon watched the arrival of these birds at the city of New Orleans, and ascertained that the rate of their flight during this migration did not exceed four miles an hour. When the flock encounters a violent storm of wind, they meet it courageously, and appear to slide along the edges of the gust, so as not to lose an inch of ground. The foremost front the storm with pertinacity, ascending or plunging along the skirts of the opposing currents, and entering their undulating recesses, as if determined to force their way through, while the rest follow close behind, all huddled together into such compact masses, as to appear like a black spot. Not a twitter is then to be heard from them by a spectator below, but the instant the farther edge of the current is doubled, they relax their efforts to refresh themselves, and twitter in united accord, as if congratulating each other on the successful issue of the contest.

These courageous birds attack and drive away every species of hawk, crow, or vulture, and even chase away the cat that may be prowling about the roof in search of the young birds. In consequence of their attacks on birds of prey, and also on numerous insects, among which are even large beetles, the purple martin is a welcome visitant to the lands of the American farmer.

It is on this account, doubtless, that such pains are taken for the accommodation of these birds; so that while the wealthier classes provide handsome boxes for their reception at the nesting time, the poor slave will also scoop out the middle of a gourd, and hang it up near his dwelling, to entice the approach of the bold and insect-loving martin. A nest thus prepared forms the subject of our illustration.

HISTORY OF MR. READ, AND HIS INVENTION OF THE STOMACH-PUMP.

EARLY before breakfast, a gardener of the name of Read, in the service of Dr. Marriot, a clergyman in Kent, called to see Sir Astley Cooper. He had contrived an instrument which he thought would be beneficial in removing poison from the stomach, and not meeting with any encouragement from the surgeons in his own neighbourhood, had determined to show it to Sir Astley. He was at once introduced to him, and having explained the object of his visit, and the nature of his invention, he handed him a syringe, to which a long elastic tube was attached. Taking it in his hand, Sir Astley regarded it for some moments with attention, moved the piston up and down, and then said, "Well, but what is this for? how do you use it?" Mr. Read explained, that the elastic tube was to be passed down into the stomach, and that by means of the piston and certain spherical valves which he pointed out, any fluid could be easily injected into or removed from that organ.

Sir Astley's instant conviction of the usefulness of this contrivance was remarkable, and formed a singular contrast with the ridicule with which it had been assailed by others. His curiosity, when once excited by any object, was never satisfied until he had made himself perfectly familiar with all the circumstances in detail. "Come," said he, placing his hand on his humble friend's shoulder, a favourite action with him when pleased with any one, "come up stairs, and have some breakfast; we must have some more talk about this."

Mr. Read was accordingly introduced to the ladies, and during the meal the conversation turned on the new invention, and Mr. Read's various occupations in the country. His active genius and acute perception were brought out by the pointed remarks and questions of Sir Astley, and the visit of the gardener was not soon forgotten.

After breakfast Sir Astley took Mr. Read into a private room, and remained closeted with him for two hours. He made him relate his history, the circumstances which led to his invention, and then entered into a long conversation respecting the science of hydraulics, with which Mr. Read had made himself familiar. The great interest Sir Astley took in testing the value of this important professional instrument, the peculiar genius of its inventor, and the humble position in life from which he has honourably raised himself, make these circumstances worthy of being recorded. They will place him, in the history of science, in the list of those who, in spite of the depressing circumstances of deficient education and obscure rank, have emerged by their own exertions from their position, and forced themselves into notice.

Mr. Read's history of himself was this: His father had been a farmer in Kent, and he had been educated to follow the same occupation; but the employment proved exceedingly irksome to him. As a child, he had displayed the greatest delight in mechanical contrivances; and while engaged in farming, always devoted his leisure hours to indulging his taste for this favourite pursuit, and, indeed, turned it to a profitable account. He was a great reader, and made himself well acquainted with history and general science. At the age of twenty-two, he left his father's farm, and became bailiff to a gentleman farmer in the parish of Horsemunden in Kent. He remained with him three years, and then determined to leave his native place, and seek employment abroad. Dr. Marriot, the clergyman of the parish, hearing of his intention, and being well aware of his talents and general good conduct, made him the offer of placing under his superintendence the laying out and arranging of the gardens of an estate, which had lately devolved on him. This offer Mr. Read accepted; and one day, while pondering over the means of distributing some water in a certain direction, Dr. Marriot sent him the part of a Cyclopædia which treated on "Hydrostatics." His interest was at once excited, and he determined thoroughly to peruse the article, and after immense labour and expenditure of time succeeded in making himself master of its contents.

Mr. Read's perseverance and success in the management of gardens pleased Dr. Marriot so much, that he gave him access to his library whenever he thought proper, during leisure hours. Mr. Read availed himself of this permission, and often sat up the whole night engaged in study. Here he found a large volume of anatomical plates; and led on by the laudable curiosity to understand the construction of his own frame, he studied these with such diligence, that he soon acquired a tolerable knowledge of anatomy. But he chiefly devoted his attention to the science of hydraulics; and although he found the technical expressions and descriptions for some time to be a bar to his progress, by dint of perseverance and earnest attention he overcame all difficulties, and after a few years obtained as perfect a knowledge of the science as the opportunities open to him allowed. While thus industriously engaged, his inventive genius displayed itself in an important improvement which he effected in the engine usually employed for watering the garden; and the alteration which he made has been in use ever since.

Some few years afterwards, on the occasion of the death of one of Dr. Marriot's domestics, Mr. Read suggested to Dr. Wilmot, the physician in attendance, the application of the instrument he had invented for the relief of the disease which had destroyed his patient. Dr. Marriot saw its application, and suggested some improvements which Read constructed according to the Doctor's design. This apparatus was submitted to the inspection of the Council of the College of Surgeons, and highly appoved of. It then occurred to Read that it might be adapted to the purpose of removing poisonous fluids from the stomach; but the ridicule which this proposition brought upon him, checked for a time his ardour. In the year 1822, the death of the Bishop of Armagh, from taking laudanum by mistake, again directed Read's attention to the subject, and he determined to put his project to the test. The fame of Sir Astley Cooper, together with the cool reception his views had met from members of the profession in the country, induced him to show it to him as soon as it was finished.

His judgment in taking this step did not mislead him. As soon as Sir Astley Cooper had heard these particulars, he determined at once to test the utility of the instrument by experiment; and in order to give publicity to the result, appointed Mr. Read to meet him at Guy's Hospital in the afternoon. No dog or other animal suited to his purpose could be obtained that day; but on the following, the opportunity offered. Accordingly, in one of the theatres of the hospital, a dog was made to swallow a large quantity of opium; and so soon as the poison had produced its deleterious influence the instrument was used. It was found perfectly to fulfil its intention; and the animal recovered. Sir Astley then explained the mechanism of the apparatus to the class, and, shaking Mr. Read by the hand, said that his invention was of the greatest value, no less to the profession than to humanity at large; and observed that had he lived in ancient Greece he would undoubtedly have been crowned with laurel.

Sir Astley spoke of the instrument in his surgical lectures in the following manner. "It enables us not merely to remove the poison from the stomach, but to throw in water in considerable quantities; and to introduce stimulating remedies after the opium is removed, for the purpose of restoring the functions of the nervous system; and this under circumstances where emetics cannot be even swallowed. I certainly do expect the happiest results in such cases from the invention of this instrument. The man who first suggested such an idea deserves well of his country, and they who oppose it until the instrument has been fairly tried, must be destitute of understanding. Persons who object to a proposition merely because it is new, or who endeavour to detract from the merit of the man who proves the value of his invention by demonstrating its usefulness and applicability, are foolish, unmanly, envious, and illiberal objectors; they are unworthy of the designation either of professional men, or of men of science."

The use of this instrument has long since justified the high expectations respecting it of Sir Astley Cooper.—*Life of Sir Astley Cooper.*

THERE is in the consciousness of every man a deep impression of continued existence. The casuist may reason against it till he bewilder himself in his own sophistries; but a voice within gives the lie to his vain speculations, and pleads with authority for a life which is to come. The sincere and humble inquirer cherishes the impression, while he seeks for further light on a subject so momentous; and he thus receives, with absolute conviction, the truth which beams upon him from the revelation of God,—that the mysterious part of his being, which thinks, and wills, and reasons, shall indeed survive the wreck of its mortal tenement, and is destined for immortality.—ABERCROMBIE.

EASY LESSONS ON REASONING.

LESSON V.

§ 1 WE have seen that in every Proposition there is something that is spoken of; which is called the Subject; and something that you affirm or deny of it; which is called the Predicate. And it is evidently of great importance to understand and express clearly, in each Proposition, whether the Predicate is said of the *whole* of the Subject, or only of *part* of it:—in other words, whether it is *predicated* "*universally*," or "*particularly*." ["*partially*"]

If, for instance, I say, or am understood to imply, that "*all* testimony is unworthy of credit," this is a very different assertion from saying or implying, merely that "*some* testimony is unworthy of credit. The former of these is called a "*Universal*" Proposition; the Subject of it being *taken universally*, as standing for *anything and everything* that the Term is capable of being applied to in the same sense. And a Term so taken is said (in technical language) to be "*distributed*." THE latter of the two is called a "*Particular Proposition*," the Subject being *taken particularly*, as standing only for *part* of the things signified by it: and the Term is then said to be "*undistributed*."

The technical word "distributed" (meaning what some writers express by the phrase "taken universally") is used, as you perceive, in a sense far removed from what it bears in ordinary language. But,—for that very reason,—it is the less likely to lead to mistakes and confusion. And when once its technical sense is explained, it is easily remembered. When I say "birds come from eggs," and again "birds sing" I mean, in the former proposition, "all birds;" [or "every bird"] in the latter proposition I mean, not, "*all*" but "*some*" birds. In the former case the term "birds" is said to be "distributed;" in the latter, "undistributed." You must be careful also to keep in mind the technical sense (already explained) of the word "*particular*." In ordinary discourse, we often speak of "this *particular* person" or thing; meaning "this *individual*." But the technical sense is different. If I say "this city is large" the Proposition is not "Particular," but is equivalent to a *Universal*; since I am speaking of the *whole* of the Subject; which is, "*this single city*." But "*some* city is large" or, "some cities are large" is a particular proposition; because the Subject, "*city*," is taken not *universally*, but *partially*.

The distinction between a "Universal" proposition and a "Particular" is (as I have said) very important in Reasoning; because, as has been already remarked, altho' what is said of the *whole* of a Class may be said of anything contained in that Class, the Rule does not apply when something is said merely of *part* of a Class. (see the example "X is Y" in § 3. of the preceding Lesson)

§ 2. You will have seen that in some of the foregoing examples, the words "all," "every," or "any," which are used to denote the distribution of a Subject, and again "some," which denotes its non-distribution, are not *expressed*. They are often *understood*, and left to be supplied in the reader's or hearer's mind. Thus, in the last example, "birds sing," evidently means "*some* birds;" and "man is mortal" would be understood to mean "*every* man."

A Proposition thus expressed, is called "*Indefinite*;" it being left *undetermined* ["undefined"] by the form of expression, whether it is to be considered as Universal or as Particular. And mistakes as to this point will often give a plausible air to fallacies; such as that in the last Lesson (§ 4.) respecting "Testimony."

But it is plain that every Proposition must in reality be either Universal or Particular; [that is, must have its Subject intended to be understood as distributed, or, as not distributed] tho' we may not be told *which* of the two is meant.

And this is called in technical language, the distinction of Propositions according to their "Quantity;" namely into Universal and Particular. "Every X is Y" and "some X is Y," are propositions differing from each other in their "quantity," and in nothing else.

§ 3. But the *Predicate* of a proposition, you may observe, has no such sign as "all" or "some," affixed to it, which denote, when affixed to the *Subject*, the distribution or non-distribution of that term. And yet it is plain that each Term of a proposition,—whether Subject or Predicate—must always be meant to stand either for the whole, or for part, of what is signified by it;—in other words,—must really *be* either distributed or undistributed. But this depends, in the case of the Predicate, not on the "quantity" of the proposition, but on what is called its "*Quality*;" that is, its being *Affirmative* or *Negative*. And the invariable rule (which will be explained presently) is, that the Predicate of a Negative-proposition is distributed, and the Predicate of an Affirmative, undistributed.

When I say "X is Y" the term "Y" is considered as standing for *part* of the things to which it is applicable; in other words, is undistributed. And it makes no difference as to this point whether I say "*all* X," or "*some* X is Y." The *Predicate* is equally undistributed in both cases; the only thing denoted by the signs "all" or "some," being the distribution or non-distribution of the *Subject*.

If, on the other hand, I say "X is not Y." whether meaning that "*No* X is Y," or, that "*some* X is not Y," in either case, "Y" is distributed.

§ 4. The reason of this rule you will understand, by considering, that a Term which may with truth be affirmed of some other, may be such as would *also* apply equally well, and in the same sense, to *something else besides* that other. Thus, it is true that "all iron is a metal," altho' the term "metal" is equally applicable to gold, copper, &c., so that you could not say with truth that "all metal is iron," or that "iron, *and that only*, is a metal." For the term "iron" is of narrower extent than the term "metal" which is affirmed of it.

So that, in the above proposition, what we have been comparing, are, the *whole* of the term "iron," and *part* of the term "metal;" which latter term, consequently, is undistributed.

And this explanation applies to every affirmative proposition. For tho' it *may so happen* that the Subject and the Predicate may be of equal extent [or "*equivalent*," or, as some express it, "convertible"], so that the Predicate which is affirmed of that Subject could *not* have been affirmed of *anything else*, this is not *implied in the expression* of the proposition itself.

In the assertions, for instance, that "every equilateral triangle is equiangular," and that "any two triangles which have all the sides of one equal to all the sides of the other, each to each, are of equal areas," it is not implied that "every equiangular triangle is equilateral," or that "any two triangles of equal areas have their respective sides equal." This latter indeed is not *true*: the one preceding it *is* true; that is, it is true that "every equiangular triangle is equilateral," as well as that "every equilateral triangle is equiangular:" but these are *two* distinct propositions, and are separately proved in treatises of Geometry.

If it happen to be my object to assert that the Predicate as well as the Subject of a certain affirmative proposition is to be understood as distributed—and if I say, for instance "all equilateral triangles, *and no others*, are equiangular,"—I am asserting, in reality, not *one* proposition merely, but *two*. And this is the case whenever the proposition I state is understood (whether from the meaning of the words employed, or from the general drift of the discourse) to imply that the whole of the Predicate is meant to be affirmed of the Subject.

Thus, if I say of one number—suppose 100—that it

is the Square of another, as 10, then, this is understood by every one, from his *knowledge of the nature of numbers*, to imply, what are, in reality, the *two* propositions, that "100 is the Square of 10," and also that "the Square of 10 is 100."

Terms thus related to each other are called in technical language, "*convertible*" [or, "equivalent"] terms. But then, you are to observe that when you not only affirm one term of another, but also affirm (or imply) that these *are* "*convertible*" terms, you are making not merely *one* assertion, but *two*.

§ 5. It appears then that in affirming that "X is Y," I assert merely that "Y"—*either* the *whole* of it, or *part*, (*it is not declared, which*) is applicable to "X;" [or "comprehends," or "contains" X]. Consequently, if *any part* of a certain Predicate be applicable to the Subject, it must be affirmed,—and of course *cannot be denied*—of that Subject. To *deny* therefore the Predicate of the Subject, must imply that *no part* of the Predicate is applicable to that Subject; in short that the *whole* Predicate is denied of that Subject.

You may thus perceive that to assert that "X is *not* Y" is to say that *no part* of the term "Y" is applicable to "X:" (for if *any* part *were* applicable, "Y" could be *affirmed*, and not denied, of "X") in other words, that the *whole* of "Y" is denied of "X;" and that consequently "Y" is "distributed." When I say, for instance "All the men found on that island are sailors of the ship that was wrecked there," this might be equally true whether the whole crew, or only some of them, were saved on the island. To say therefore that "the men found on that island are *not* sailors of the ship &c." would be to *deny that any part* of that crew are there; in short, it would be to say that the whole of that Predicate is *in*applicable to that subject.

§ 6. And this holds good equally whether the negative proposition be "universal" or "particular." For to say that "Some X is not Y" (or—which is the same in sense—that "All X is not Y") is to imply that there is *no part* of the term "Y" [no part of the class which "Y" stands *for*] that is applicable to the *whole without exception*, of the term "X;"—in short, that there is *some part* of the term "X" to which "Y" is wholly inapplicable.

Thus, if I say, "some of the men found on that island are not sailors of the ship that was wrecked there," or, in other words, "the men found on that island are *not, all of them*, sailors of the ship &c." I imply that the term "sailors &c." is *wholly* inapplicable to *some* of the "men on the island;" tho' it might perhaps be applicable to others of them.

Again if I say "some coin is made of silver," and "some coin is not made of silver," (or in other words, that "all coin is not made of silver") in the former of these propositions I imply, that in *some portion* (at least) of the Class of "things made of silver," is found [or comprehended] "some coin:" in the latter proposition I imply that there is "some coin" which is contained in *no* portion of the Class of "things made of silver;" or (in other words) which is *excluded* from the *whole* of that Class. So that the term "made of silver" is distributed in this latter proposition, and not, in the former.

Hence may be understood the Rule above given, that in all Affirmative-propositions the Predicate is undistributed, and in all Negative-propositions, is distributed.

The Subject is, as we have seen above, distributed, in a Universal-proposition (whether affirmative or negative) and not, in a Particular. So that the distribution or non-distribution of the *Subject* depends on the "*Quantity*" of the proposition, and that of the *Predicate* on the "Quality."

LETTERS TO THE READER.

No. VII.

MY DEAR READER,

You will remember that the sufferings of our mining and manufacturing children, in respect of employment, food, clothing, &c., formed the subject of my last letter (*Saturday Magazine*, April 8th). To complete this investigation into the condition of our little fellow-country-people, it will be necessary to see what effects these causes are likely to produce upon them in after life, as well as to inquire into the mental and moral relationship which they bear to the civilization and religion of our age and country.

The Physical prospects of the children are in exact correspondence to their bodily treatment. By their employment at tender ages, the growth of the body is retarded, and the period of childhood protracted. The period intervening between adult age and decrepitude—that is, while the physical, intellectual, and moral powers of the man are in full vigour—is abridged. Manhood is shortened, and the age of helplessness and death anticipated. Underground labour is a deprivation of solar light which alone can perfect the process of nutrition. This function being depressed, the organic frame is never well-developed. In South Wales the children of the miners get pale in their looks, and weak in their limbs. An unnatural projection of the chest-bones, and a sinking in of the spine, is common to those who work the smaller seams of coal. A crippled gait, often connected with positive deformity, frequently comes upon the infant miner.

An extraordinary development of the muscular system is produced by colliery labour. This, instead of being an indication of sound and robust health, is really a proof that the general system is starved by the over-nourishment of one particular part of it. That the constitution is really weakened by this undue expenditure of nutriment upon muscles, is proved by the fact that the other parts are stunted, and also by the early death of the collier. It is rare to see a collier able to follow his calling beyond the age of forty or fifty. In a population of 1000, says the rector of Begelly, South Wales, there are not six colliers sixty years of age.

The positive diseases produced by this employment result, partly from early and over-exertion, and partly from deficient ventilation and drainage of the mines. The lungs, heart, glands, and joints, suffer most. Of the affections of the lungs, asthma is the most frequent:—'Father cannot labour much,' said a poor Scotch boy, 'as he is nearly done in the breath. Mother is clean done for; she can hardly breathe, and has not worked for some years.'

In consequence of imperfect ventilation, the air of coal mines, which is commonly breathed during twelve out of twenty-four hours, does not contain sufficient oxygen to decarbonize the blood. Hence the blood becomes over-charged with that noxious ingredient (carbon) from which it is the main purpose of respiration to purify it. Lamp smoke likewise adds to the quantity of atmospheric carbon. Blasts with gunpowder produce irritating and deleterious gases. The delicate structure of the lungs becomes infiltrated with carbonaceous matter, the consequence of which, to the older colliers, is a fatal asthma, called by them the "black spit." Consumption, also, is frequent amongst the mining population. Exposure to cold and damp causes painful affections of the muscles, ligaments, and joints. The combined operation of these various causes sends the miner to comparatively an early grave.

The soil and dwellings of the workmen of Birmingham, I have said, are good. The clothing and food of the children, miserable; hence is partly to be attributed the fact, that half of the total number of deaths in that city are those of children under five years of age. At Wolverhampton and Willenhall the children employed in

the manufacture of metal wares are stunted, and frequently deformed. At the latter place the constable says there are examples without number of deformed men and boys, hump-backed, and knock-kneed. At Warrington a private of the 12th Lancers, recruiting for service, could not enlist a single man of sufficient height, although many offered. The children of Warrington are poorly fed and clothed, and work in ill ventilated and crowded rooms. They are, therefore, stunted.

In Bucks, and some of the neighbouring counties, numbers of young children are kept during the day in small, crowded, ill-ventilated cottages, stooping over their lace pillows. Some girls wear a strong wooden busk to prevent the stooping, which only adds indigestion to the most common and mortal disease of their occupation, namely, consumption. With the single exception of the Sheffield dry-grinder, no employment entails so fearful a catalogue of distressing and frequently fatal maladies, as that of milliners and dress-makers.

The MENTAL CONDITION of a large proportion of these children and young persons can, alas! be stated in a few words. At Bilston, with a population of 20,000, there are only four day-schools. In South Staffordshire generally, there is no provision for a quarter of the uneducated youth. The constant return from the Derbyshire coal-mines is, "no school, no reading room, nor anything of the sort connected with these coal-works." Out of 219 children and young persons examined at the bottom of one of the coal-pits near Halifax, only thirty-one could read an easy book, and not more than fifteen could write their names. Oldham and its vicinity contains upwards of 100,000 inhabitants; yet it has only one public day-school for the labouring classes, except an infant-school. The Report goes on to say, that in North Lancashire the intellects of the young colliers are as little enlightened as their places of work—"darkness reigns throughout."

Numbers. Children were found ignorant of the lowest calculations. "I cannot tell how many days in the year. I cannot tell how many weeks in a year," answered a boy at Durham. There are grown up men in Lancashire who cannot reckon the wages they receive. One young person, seventeen years old, working at Wolverhampton, did not know how many two and two made, nor how many farthings there were in two-pence, even when the money was placed in his hand. Another lad, at the same place, could not tell how many twice two made; nor how much money four farthings made; another, aged seventeen, said that seventeen farthings made ten-pence half-penny; another, aged sixteen, being asked how many ounces were in a pound, said "he was no judge o' nothing."

Places. Few children in the county of Durham, who worked in the mines, had ever heard of such places as Birmingham, or Manchester, or Liverpool, and as few in Staffordshire had ever heard of Durham, or Newcastle. One child had never heard of France, or Scotland, or Ireland, nor did he know what America was. Another, a Lancashire boy, eleven years old, had never heard of London. A Wolverhampton boy, also, had never heard of London, nor of Willenhall, which is only three miles distant from, and in constant communication with, Wolverhampton.

Persons. James Taylor, in Lancashire, "had heard of the Queen, but dunnot know who *he* is." Other children had never heard the name of Her Majesty, nor of Wellington, Nelson, Buonaparte, &c. It is to be especially remarked that, among all those who had never heard of such names as St. Paul, Moses, or Solomon, there was a general knowledge of the characters and course of life of certain infamous highwaymen.

Christianity. The foregoing facts will have prepared you for an equal ignorance upon sacred subjects. The majority of the collier children in Yorkshire are in a state of heathenism. They exhibit a picture of moral and mental darkness, which must excite grief in every Christian mind. A boy in Lancashire said that he had never heard of Jesus Christ. He confessed, indeed, that he had heard of God, but only from the desecration of His name. Three girls, all employed in the pits, of the ages of sixteen, fifteen, and eleven, declared that they had no knowledge even of the existence of a Saviour. A girl of eighteen years of age, in Yorkshire, said, "I never learnt nought. I never go to church or chapel. I never heard that a good man came into the world, who was God's Son, to save sinners. I never heard of Christ at all. Nobody has ever told me about Him; nor have my father and mother ever taught me to pray. I know no prayer. I never pray. I have been taught nothing about such things."

The MORAL CONDITION of childhood is, almost in every instance, the consequence of the relations that surround it. The earliest of these is,—

Parents. The ease with which parents are now enabled to rid themselves of the burden of their children's support, by drafting them into mines, and manufactures, weakens all parental and domestic ties, and puts a stop to progress in moral habits. There are hundreds of men in Birmingham who are supported in idleness by the earnings of their wives and children. This reversal of the laws of nature, decides the moral degradation of the offspring. Filial affection is soon worn out. Brothers and sisters are separated at an early age,—go to different kinds of work,—and soon lose all mutual interest, if any had existed. Instead of pious and intelligent parents to watch over their dawning faculties, and to preserve them, soul and body, from the contamination of the world, they have,—

Companions, and what companions? The most dissolute, the most depraved, awfully ignorant, and scarcely retaining the mental and moral attributes of man. "These tend to destroy all delicacy, love of truth, in fact, the whole circle of moral virtues, by poisoning every principle in the bud,—supposing the poor child to have ever had one seed previously sown in its breast which had found time to take root sufficiently to put forth a bud." What kind of subjects is such a community likely to become to the—

Government of the country? Insubordination to parental authority leads to insubordination to all authority. The morals of the collier children in Durham and Northumberland, "are bad, their education worse, their intellect very much debased, and their carelessness, irreligion, and immorality" are frightful. The ministers of religion declare that the country will be "inevitably ruined unless some steps are taken for securing a full education to the children of the working classes." Vice is contagious, and crimes of no ordinary description have been planned by the neglected population of the mines. The outbreaks, which have occurred in recent times, are the natural consequences of the possession, by childhood, of liberty unrestrained by friend, or parent, at an age when few are capable of self-government; and, also, of the utter absence of external means of education. Educated, in truth, they are; but it is by bad companions to crime and violence.

Religious institutions. In Cumberland not more than one fifth of the collier families attend public worship regularly.

A great number of children employed in labour attend no school at all, nor any place of worship. One child complained "he never went to school, feel t' want of that; *it is a sad letting down to a man.*" The excessive physical fatigue of the week-days makes any mental or religious instruction irksome to the children. "I go," says one, "to Sunday-school sometimes *when I am driven.*" "I do not go to church or chapel," says another, adding "we are worked too hard for that."

The mining children are, therefore, necessarily growing up in a state of absolute and appalling ignorance.

An act of worship is nearly as strange to them as to a Hottentot unenlightened by Christianity. Respecting the state of manufacturing children in the neighbourhood of Wolverhampton, it is observed that a lower condition of morals could not be found; "moral feelings and sentiments do not exist among them. *They have no morals.*"

These are the prominent evils which the Report contains. As there are physical, and mental, and moral evils, so must there be physical, and mental, and moral remedies. Infant slavery will be abolished: the daily labour of childhood must be shortened, and each be taught the duties which he owes to himself, to his fellow creatures, and his God.

In conclusion, I would observe that many of the evils above described, may be beyond yours or my own observation and control; but this by no means rids us of the responsibility of reflecting upon their causes. The remedies of social evils and the removal of their causes include a knowledge of the FIRST PRINCIPLES of science and of Christian action. These principles are as applicable to the improvement of ourselves, our children, and the fellow creatures who more immediately surround us, as of the neglected orphans of a colliery, or the natives of uncivilized lands. For, being every one of us created after the same pattern, our bodily organs are, when placed under the same conditions, reduced to similar diseases; our minds, but for instruction, are alike dark with ignorance and error: above all, our moral or spiritual characters are equally defaced by selfishness towards others, and indulgence to ourselves, unless we are animated with a generous spirit of good will and peace, which is the spirit of our holy religion.

Hence it follows that we cannot sincerely set about to raise the health, intelligence, and piety of those around us, without at the same time increasing the health, intelligence, and piety of ourselves and homes. The purity of air which we insure by ventilation and drainage, is a benefit to our neighbour; the intelligence which works out this and numerous other domestic duties, will likewise enable him to become a centre of health and usefulness to ourselves; the heart of love which extends these blessings to the poorest, not only multiplies the amount of human happiness, but disarms the violent, and adds strength to our national affection. The seeds of love will bear the fruits of peace. Loving man, we no longer need to fear him. Caring for him whom we have seen, will also prepare the soul for regarding in a fitter spirit his invisible Creator. Heaven would then surround us not only in our infancy, but through manhood, onwards. Our religion would consist of actions—in a cheerful going about to *do* good. Dissentions about words would cease.

That you may have a hand, and not a hand only, but a head and heart also, in this good work, and may live to enjoy the fruits of an intelligent affection, is the prayer of your sincere friend, F.

QUEEN ELEANOR'S CROSSES.

V.

THE cross represented on the following page is now no longer in existence; but as engravings of it remain to the present day we have thought it right to give our readers an opportunity of marking the features of this last of the memorials, which, according to the order of the funeral progress, were raised by Edward I., in remembrance of his beloved queen, Eleanor of Castile. It was originally a beautiful piece of workmanship; but suffered much by repairs and alterations. The notice of this structure which we find in STOWE'S *Survey of London* is as follows:—

Charing Cross builded of stone, was of old time a faire piece of work, there made by command of Edward I., in the 21st year of his reign, in memory of Eleanor, his deceased queene.

The same writer tells us that the cross stood in the centre of the three streets, having

on the west St. James's Hospital, now occupied by St. James's palace and park; on the south, on the right hand, the Tilt-yard, and on the left hand a space, now called Scotland yard, formerly occupied by buildings for the receipt of the kings of Scotland and other estates of that country.

The situation occupied by this cross was in fact the same as that in which the statue of Charles I. now stands, and was perhaps one of the best which could have been chosen for a public memorial of this kind. This tribute to the faithful Eleanora was not, however, suffered to remain. In the civil wars of the reign of Charles I. it was destroyed by the frantic populace, as a remnant of superstition too leniently spared by time.

With respect to the term *Charing* Cross, we have some interesting remarks to show that it is probably no more than a corruption of the term *chère reine* which Edward, as we have already stated, was accustomed to bestow on his beloved Eleanora. These remarks are taken from STRICKLAND'S *Lives of the Queens of England.*

Of all the crosses raised to the memory of Eleanora of Castile, by her sorrowing widower, that of Charing is the most frequently named by the inhabitants of the metropolis, although the structure itself has vanished from the face of the earth. Yet every time Charing Cross is mentioned, a tribute is paid unconsciously to the virtues of Edward the First's beloved queen, for the appellation is derived from the king's own lips, who always spoke of her in his French dialect as the *chère reine.* Thus the words Charing Cross signify the "dear queen's cross," an object which was always seen by the royal widower in his egress and regress from his palace of Westminster. This anecdote is corroborated by Edward's personal habits, who certainly, like his ancestors, spoke French in his familiar intercourse. Our sovereigns had not yet adopted English as their mother tongue. Athough Edward and his father spoke English readily yet their conversation in domestic life was chiefly carried on in French.

The exact place at which Queen Eleanora died has been questioned. It is generally supposed that the sad event took place in Lincolnshire; but the village expressly mentioned by Walsingham is not in that county, though nearly verging on it. Herdeby is situated in the parish of North Clifton on the Trent, in Nottinghamshire, five miles from Lincoln. The king is said to have founded a chantry in Herdeby chapel, which was afterwards removed by his son to Lincoln cathedral. Gough says, with respect to this chantry:—

The payment of ten marks is to this day made by the Dean and Chapter of the Cathedral to the curate of Herdeby chapel.

A monument with the queen's effigy at full length, of gilded brass, anciently formed the memorial of Queen Eleanora at Lincoln. This monument shared the fate of many others in the civil wars, but a fragment of the chapel in which it stood, is still remaining at the east end of the choir.

Shortly after the death of Queen Eleanora of Castile, died also her mother-in-law, Eleanor of Provence, the widow of Henry III. She died at Ambresbury, where she had lived a nun fifteen years. Her son being at that time in Scotland, her corpse was embalmed and remained long unburied. On his return the funeral took place with great pomp in Ambresbury monastery church. Her heart was deposited in the church of the Friars Minors, London. The memory of this queen is not free from blemish; and the common people have sometimes confused the accounts of the two queens, so as to ascribe to the virtuous and excellent Eleanora some of the actions of her mother-in-law. Perhaps there is scarcely a more eminent instance of a queen, who, living in troublesome times, and appearing so prominent as Eleanora did, owing to the share she took in her

husband's perils, has not only escaped every shadow of just reproach, but whose qualities have won for her such universal admiration and esteem among the historians of her reign. The mistaken ideas of the populace may be traced in a ballad called "A Warning against Pride, being the Fall of Queen Eleanora, wife of Edward I., of England, who for her pride sank into the earth at Queenhithe and rose again at Charing Cross, after killing the Lady Mayoress." This absurd story is founded on a quarrel between Eleanor of Provence and the City of London respecting Queenhithe.

Of the numerous family born to Edward I. and Queen Eleanora of Castile, two only reached middle life, and these were the unfortunate Edward II. and the nun-princess Mary.

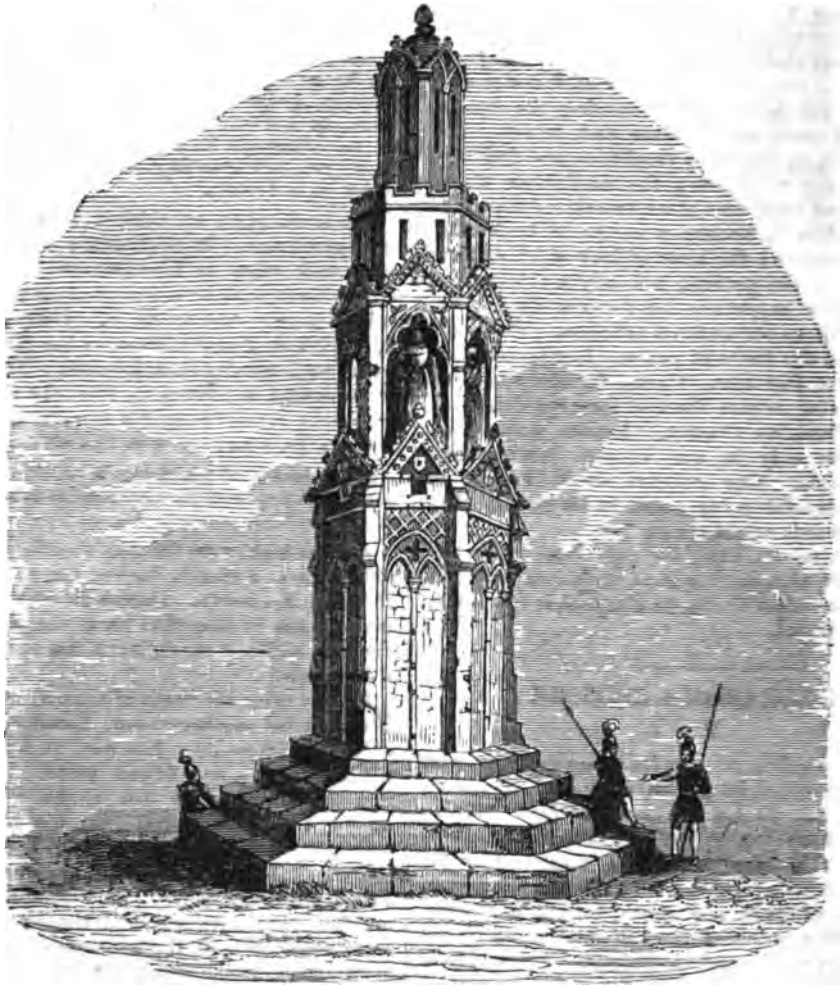
In concluding our account of Queen Eleanor's Crosses we may append some remarks from ancient authorities on the sites formerly occupied by some of these interesting structures. We mentioned the doubt as to whether Stamford should be admitted in the number of towns honoured by such a memorial. This doubt seems removed by the following extract from Butcher's account of the town, printed in 1646:—

Not far from High Dike, on the north side of the town of Stamford, near unto York highway, and about twelve score from the town gate, called Clement gate, stands an ancient cross of freestone, of a very curious fabric, having many scutcheons insculped in the stone about it, as the arms of Castile and Leon quartered, being the paternal coat of the King of Spain, and divers other hatchments belonging to that crown, which envious Time hath so defaced that only the ruins appear to my eye, and therefore are not to be described by my pen. This cross was called Queen's Cross, and erected by King Edward I. in memory of Eleanor his wife.

Also among the Harleian MSS. there is a memorandum in the pocket-book of a Mr. R. Symonds, who visited Stamford, county Lincoln, Aug. 23, 1645, of a large lofty cross standing on the hill "before ye come into the toune," with carved shields of England, Ponthieu, Castile and Leon.

Respecting the cross at Stoney Stratford, Dr. Stukely says that it stood "a little north of the Horse-shoe inn, pulled down in the rebellion." The same author adds that at Dunstaple in the centre of the four streets, intersecting at right angles, stood one of those beautiful crosses of Queen Eleanor. Also, that in the heart of the town of St. Albans stood one of Queen Eleanor's crosses, which the inhabitants entirely demolished; "not considering that such kind of antiquities invite many curious travellers to come thither."

According to Stowe "the great cross in West Cheape" nearly resembled the rest of the crosses, but "being by length of time decaied, John Hatherly, maior of London, procured in the year 1441 licence of King Henry VI. to re-edefie the same, in more beautiful manner, for the honour of the citie." But this re-edification was carried on with so little respect to the original intention, that the statues of the queen were converted into saints, and the whole edifice became illustrative of their history.



THE ORIGINAL CHARING-CROSS.

JOHN W. PARKER, PUBLISHER, WEST STRAND, LONDON.

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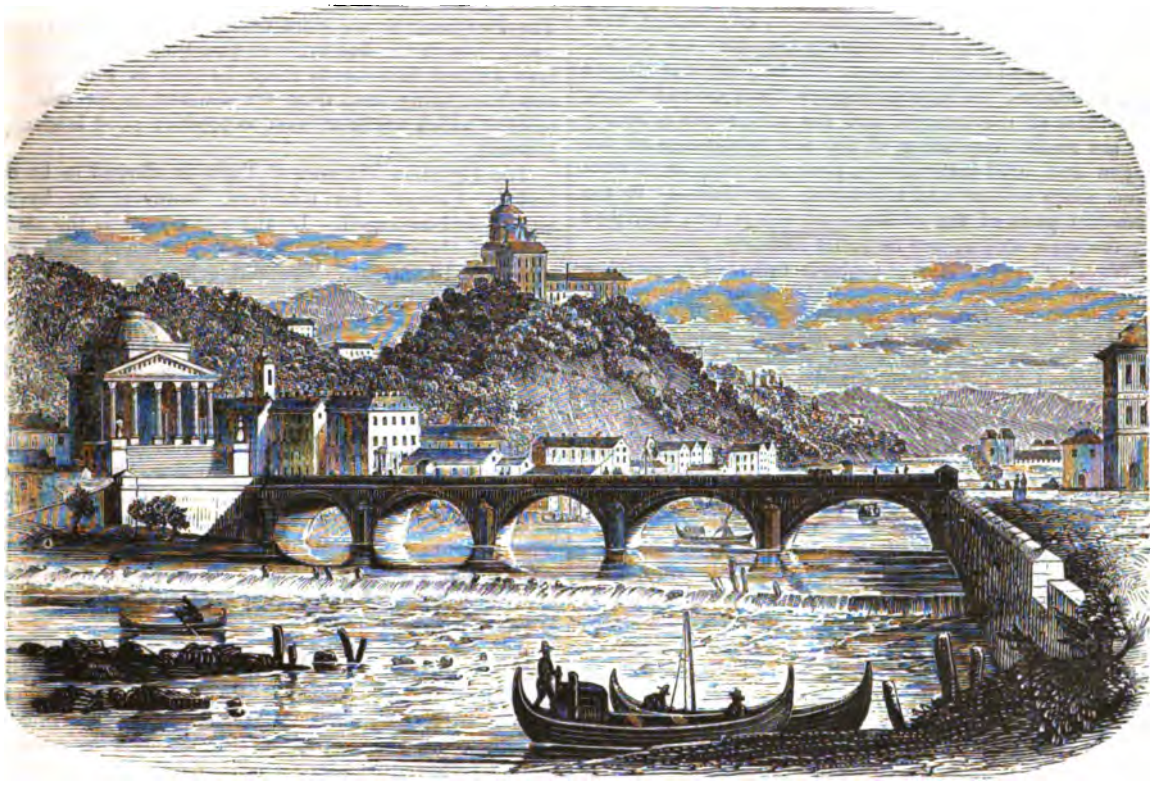
THE CITY OF TURIN.



PONTO DEL PO.

The province in which the extensive city of Turin is situated, and which bears the same name, forms part of the kingdom of Sardinia, in the ancient division of Piedmont. The soil throughout the province is of high fertility, and the country is diversified by high mountains, gentle hills and valleys, and occasionally extensive plains. The north-western division, which is the most mountainous, has some extensive woods, and contains many mines of iron and of vitriol, and quarries of marble and limestone. Good pasturage, and abundant crops of wheat, barley, maize, and beans are prevalent throughout the country. The vineyards yield much wine, and the mulberry-trees feed vast quantities of silkworms.

Turin is the capital city not only of that province but of the whole kingdom. It is the residence of the monarch, the seat of the central boards of government, and the see of an archbishop. The regularity of its plan, the multiplicity of its public buildings, and the elaborate style of architecture which distinguishes the greater part of them, gives this city the precedence of most of the cities of Europe. Its situation at the confluence of the rivers Doria and Po is an admirable one, and its natural advantages have been diligently seconded by art.

Our view represents the left bank of the Po, at a short distance from the bridge. The edifice occupying the heights is the Capuchin Monastery; that to the left is the new marble church, which is built in the form of a rotunda, like the Pantheon. The Villa della Regina, the suburb, and a few villas scattered along the declivity, also enliven this view of Turin. The bridge, or Ponto del Po, is an elegant specimen of art, built entirely of granite and marble, and combining "the very difficult qualities of a light and airy span, with perfect solidity of structure." The river Po becomes navigable considerably above Turin, and in a course of three hundred miles receives the waters of thirty rivers, washes the walls of fifty cities and towns, and communicates fertility and riches to the extensive district known as the Valley of the Po.

The objects which principally attract the attention of the stranger on entering this celebrated city, are thus alluded to by Mr. Gilly:—

The city is much more imposing at first entrance than either Paris or Lyons, from the breadth and cleanliness of the streets, and the uniformity of the houses. There was something also in the appearance of the population which told us we were in a new region, and added to the general effect; but the most striking objects were priests and soldiers, both of whom swarm in Turin. The dress and figures of the Piedmontese officers were equally handsome; and the long flowing cassocks and cloaks, the large flapped hats, and confident air of the priests, told that they are by no means the despised and neglected order that they are in France. Once only, on my journey through France, did I see any mark of respect paid to the clergy, and that was at Lyons, where an aged priest, not in the full garb of his profession, passed a boy, who bowed to him, and the visible delight of the old man sufficiently proved that the attention was neither new nor expected. At Moulins we happened to

follow a priest for some distance, arrayed in all his canonicals, but none said "God bless him." But the influence of the Roman hierarchy is sensibly felt in the metropolis of his Sardinian majesty: we noticed on the outside of churches innumerable inscriptions, such as "*plenary indulgence*," and "*pray for the soul of Filippo Costani;*" and saw votaries offering up their supplications before pictures of the Virgin at the corners of the streets, penitents kneeling on the steps of the churches, and mendicant monks with their cowls and rosaries. The whole scene is not only strikingly new, but even romantic to a Protestant who is accustomed to think of such things as divided from him by centuries.

The splendours attending the cathedral service, the dim light of stained windows strangely contrasting with the blaze of numberless tapers on the altar, the magnificent cross and sacred vessels, the long train of priests and choristers, the intoxicating effect and overwhelming sweetness of the incense, and the inexpressible beauty of the music, consisting of the soft breathings of the organ and wind-instruments, now lingering as it were upon every column and monument, now rushing to the remotest parts of the edifice,—all this is well described by the same writer; but he justly adds,—

We may go to a Roman Catholic cathedral to gratify a taste for music and splendour, but not for sentiments of pure devotion. The choir and the chanting, the military band and the opera singers, the banners and trophied monuments, the decorated altars and splendid paintings, the voluptuous portraits of beautiful Magdalenes and handsome St. Sebastians, these are all "of the earth, earthy," far removed from the true "image of the heavenly."

But it is time that we notice the most remarkable public edifices in Turin; and we therefore commence our selection (for it can only be a selection where the numbers are so great) with the Royal Palace. This is a dull-looking edifice, chiefly interesting for its collection of pictures, especially those of the Flemish and Dutch schools. In the Swiss guard-room there is a rare picture, by Palma, of the battle of St. Quentin. Other pictures of superior merit, are Vandyck's "Prince Thomas on horseback," Children of Charles I., and the portrait of the painter. There is another portrait of Charles I., by Vandyck's pupil, Daniel Mytens. Also Murillo's "Confessional," Paul Potter's "Animals," Gerard Dow's "Women gathering Grapes," and Holbein's portraits of Luther and his Wife.

The Hall or Museum of Ancient Armour, formed by the king Charles Albert, near his own apartment, is rich, well arranged, and effective.

The palaces of Turin though rich and numerous are not in the best taste; we therefore pass by them, to notice other public edifices. The University of Turin is a magnificent and celebrated building. The number of the students amounts to more than 2000, and among the professors have been reckoned some of the most learned men of Europe. The rich Library of the university belongs principally to the ancient collection of books and manuscripts, formed by the Dukes of Savoy, commenced about the middle of the fifteenth century. This library reckons more than 112,000 volumes. Among the manuscripts there are 70 in the Hebrew language, 370 Greek, 1200 Latin, about 220 Italian, and 120 French. In this library there are also some Chinese books of poetry and medicine. There is also a Piedmontese Flora, begun in 1732, and continued to the present time, containing nearly 5000 coloured designs.

The Museum of Antiquities at Turin seems, by its obscurity and the nakedness of its apartments, rather a hiding-place for statues than a museum: yet, notwithstanding this, and that it was formed only about sixty years ago, it has a few remarkable specimens; among the most excellent of which are, a Greek marble, a Cupid sleeping on a lion's skin, two heads, one of Seneca, the other of a Cyclop, a marble bust of the Emperor Julian, and another of Vespasian, with a head of Antinoüs; the wonderful mosaic of Orpheus, found near Cagliari, and comparable to the best in Rome for the beauty of the wild and tame animals represented in it; a bronze statue of Minerva, one of the most remarkable known on account of the delicacy of its execution. The Medal-room is one of the richest in Europe, reckoning not less than 30,000 specimens.

The Royal Academy of Sciences at Turin was rendered illustrious, from the time of its commencement in 1759, by the labours of Lagrange. It consists of two departments; the first devoted to Mathematical and Physical Science; the second to the Moral Sciences, History, and Philology. The Royal Military Academy, and the Academy of the Fine Arts also deserve notice. The Piedmontese are more expert in science, war, and trade, than in the fine arts; so that they have generally been deemed inferior to other Italians in this respect, notwithstanding that they are situated in the midst of scenery which ought at least to produce good landscape painters.

The Egyptian Museum at Turin is allowed to be the first in Europe. Its treasures, however, are by no means well arranged. In the court-yard is the stone statue of Osymandias, more than fifteen feet high, and weighing 18,750 lbs. The old colossus of Thebes is railed in with iron palisades.

There are some other admirable statues of Egyptian kings, *i. e.* that of Amenophis II., Thothmosis II., and that Apollo of Egyptian art, the statue of Ramses VI., (the great Sesostris,) in black basalt with white spots; he is seated on a throne in a military dress, and holds a sceptre in his hand. The expression of countenance in this celebrated statue is mild but noble, the hands are perfect, the figure good, and the feet, (generally neglected in Egyptian statues,) are of good proportions. The remaining statues and bas-reliefs are very interesting, and the implements of agriculture, and other articles in common use among that remarkable nation, are curious and valuable.

It is impossible here to particularize the numerous churches and chapels of Turin. Besides the fine Gothic Cathedral, there are forty-seven churches, sixty-seven chapels, and many monasteries and nunneries. But we must not omit a notice of St. Superga, a splendid church built on an eminence near the city, and dedicated to the Virgin. This edifice was erected by Victor Amadeus II., on the spot whence Prince Eugene, in 1706, reconnoitred the position of the French army, then besieging the capital, and in memory of the successful campaign which delivered the Ducal States from the invading enemy. The grandeur of the design and execution of this building is much landed, and vast treasures were bestowed upon it, in order to make it the surprising and magnificent place we find it to be. The eye is dazzled with the glories of its proud arcades, its superb cloisters and terraces, its marble columns and pavement; but the mind is unsatisfied in reflecting on the bestowal of such enormous wealth on what may be considered an object chiefly of curiosity. From the nature of the situation, the cost of conveying materials to build a church there must have been immense, while the utility for any purposes of devotion was altogether overlooked.

In this building the bones of Victor Amadeus rest in a royal sepulchre, said to be the most costly in Europe; while above them towers a cupola, from whose lofty top the rich plains of Piedmont, the majestic Alps, and the river Po, "king of floods," may be seen in all their pride and glory. Mr. Gilly says of this stupendous work of Victor Amadeus,—

The memorial of his gratitude to the Virgin is beheld for leagues and leagues before that capital can be approached, which his valiant legions saved by their devoted heroism; and none can ascend the Superga, without thinking and speaking of Victor Amadeus the Second. But had he founded an institution like the Hôtel Dieu at Lyons, or the

College at Chelsea, or the Hospital at Greenwich, his name would have been blessed by hundreds of thousands, when it is now only mentioned among the number of those many vain-glorious sovereigns who knew how to conquer their enemies, but not to make their subjects happy. Man may try to outdo the works of Nature; he may erect the most stupendous and costly monuments, but in most cases they expose him to censure or reproach. The hill on which the Superga stands would have commanded the same extensive prospects without the aid of that aspiring dome. Its bold elevation would of itself have reminded posterity, that upon that height stood Eugene, by the side of the warlike Duke of Savoy, when his great mind comprehended at a glance the blunders of the French army, and formed a plan for their defeat; but the basilica of Victor Amadeus will never be seen without raising emotions unfavourable to its founder. It was cemented with the blood and washed with the tears of his people. He kept his vow to the Virgin, and thousands must have been wrung from his subjects to enable him to do so: but he knew not how to abide by his promises of protection to his faithful Vaudois, although they were drawn from him by services and sacrifices which deserved the amplest recompense.

The Protestants of Turin are not permitted to have any place of worship of their own; they therefore petitioned, and obtained the privilege of attending the British Ambassador's Chapel. For their accommodation the service is performed, not in English nor according to the English Liturgy, but in French, and after the ritual of the church of Geneva, or Neufchatel. At the time of Mr. Gilly's visit one of the Vaudois clergy was the officiating minister at the chapel, the learned and excellent M. Bert, pastor of La Torre.

Dr. Babington had been sent for to see a patient, the landlord of a public house, and had appointed to be with him in the evening. The recollection of his engagement, however, had passed away from his mind, nor did it recur to him until early on the following morning. He immediately went to the patient's house, but on entering, was, with much shrewishness of manner, informed by the mistress, who was serving behind the counter, that "as he had not come according to his engagement, another person had been sent for, and he was not wanted." "I am sorry I did not come," replied Dr. Babington, "but I must go and see your husband;" and saying this he ascended to the bed-room. On conversing with the patient, whom he found in a more favourable state than he had anticipated, he learned that there was only the apothecary in attendance, and was proceeding to write a prescription, when the lady, who had given him so unwelcome a reception, walked into the room. She at once recommenced an angry attack on the doctor, for his neglect, and as she described the serious consequences which it had brought upon her husband, her invectives grew severer and severer. Dr. Babington listened for some time in perfect silence, but presently he rose from his seat, walked slowly across the room, and taking hold of the landlady's arm, led her to a looking-glass. "Now, my dear lady," he said, "do look for a moment at your face; I am sure if you knew how you had been distorting what nature intended should have been so handsome, you would never get into a passion again. Your husband," he proceeded to say, "is now safe, and will not require more than a prescription, which I shall write for him, and the attendance of the apothecary. I shall, therefore, not be required to come again. Do not think I come up for a fee, for I do not intend to take one. I have one more word to add, that if you were to send for me five hundred times, to see yourself, or any one in your house, nothing on the face of the earth should induce me to come, as you don't know the demeanour which is fitting towards one of my profession." He then wrote his prescription, and departed.—*Life of Sir Astley Cooper.*

Look ye who list your gazeful eyes to feede
With sights of that is faire, look on the frame
Of this wide universe, and therein reade
The endless formes of creatures, which by name
Thou canst not count, much less their natures aime;
All which are made with wondrous wise intent,
And all with admirable beauty blent.

EASY LESSONS ON REASONING.

Lesson VI.

§ 1. The next thing to be learnt and remembered, is the names of the three Terms that occur in a Syllogism. For you will have perceived from the foregoing examples, that there are always *three* terms; which we have designated by the Symbols X, Y, and Z. Each Syllogism indeed has, in all, three Propositions; and every Proposition has two Terms; but in a Syllogism each Term occurs twice; as, "X is Y; Z is X; therefore Z is Y."

Of these three Terms then, that which is taken as the *Subject of the Conclusion* ("Z") is called the "*Minor-term;*" the Predicate of the Conclusion ["Y"] is called the "*Major-term;*" (from its being usually of more *extensive* signification than the "Minor," of which it is predicated) and the Term ["X"] which is used for establishing the connexion between those two, is, thence called the "*Middle-term,*" [or "*medium of proof.*"]

Of the two Premises, that which contains the Major-term, ("X is Y,") is called the "*Major-premise;*" (and it is, properly, and usually, placed *first;* tho' this order is not essential) and that which contains the Minor-term (Z is X) is called the "*Minor-premise.*" And in these two Premises, respectively, the Major-term and Minor-term are, each, compared with the Middle-term, in order that, in the Conclusion, they may be compared with each other; that is, one of them affirmed or denied of the other.

§ 2. Now it is requisite, as you will see by looking back to the examples formerly given, that, in one or other of the Premises, the Middle-term should be *distributed.* For if each of the Terms of the Conclusion had been compared only with *part* of the Middle-term, they would not have been both compared with *the same;* and nothing could thence be inferred.

Thus, in one of the above examples, when we say "food" (namely, "*some* food,") "is necessary to life," the term "food" is undistributed, as being the Subject of a Particular-proposition: in other words, we have affirmed the term "necessary to life," of *part* only, not the *whole,* of the Class denoted by the term "food:" and again, when we say "corn is food," the term "food" is again undistributed, (according to the Rule given in the last Lesson) as being the Predicate of an Affirmative:—in other words, tho' we have asserted that the term "food" *is applicable* to "corn," we have not said (nor, as it happens, is it true) that it is *not applicable* to anything *else;* so that we have not been taking this term "food" universally, in either Premise, but, each time, "particularly." And accordingly nothing follows from those premises.

So also, when it is said, "a wise ruler endeavours to civilize the People; and Alfred endeavoured to civilize the People;" [or "Y is X, and Z is X,"] the Middle-term is here twice made the Predicate of an Affirmative-proposition, and consequently is left undistributed, as in the former instance; and, as before, nothing follows. For, (as was formerly observed) we are not authorised to affirm one term of another, merely on the ground that there is something which has been affirmed of each of them: as the term "growing" (in the example formerly given) is affirmed of "vegetables" and also of "animals."

In each of these cases then, such an apparent-argument is condemned on the ground that it "*has the middle-term undistributed.*"

§ 3. The other kind of apparent Syllogism formerly given as an example, is faulty (as was then shown) from a different cause, and is condemned under a different title. "Every tree is a vegetable; grass is not a tree, therefore it is not a vegetable:" or, "every X is Y; Z is not X; therefore Z is not Y."

Here, the middle-term "X" is distributed; and that, not only in one Premise, but in both; being made, first, the Subject of a Universal-proposition, and again, the Predicate of a Negative. But then, the Major-term, "Y" which has not been *distributed in the Premise*, is yet distributed in the Conclusion; being, in the *Premise*, the Predicate of an *Affirmative*, and, in the *Conclusion*, of a *Negative*. We have therefore merely compared *part* of the term ["Y"] "vegetable" with the Middle-term "Tree;" ["X"] and this does not authorize our comparing, in the Conclusion, the *whole* of that same term with [Z] "grass;" which, as was explained above, we must do, if we *deny* the term "grass" of "vegetable."

Nothing therefore follows from the Premises: for it is plain that they would not warrant an *affirmative* Conclusion. To affirm that "grass *is* a vegetable," (or, as one might equally well, that "a house is a vegetable") because it "is not a tree," would not have even any appearance of Reasoning. No one would pretend to *affirm* one term of another (as, Y, of Z) on the ground that it had been affirmed of something ("X") which had been denied of that other.

Such a fallacy as the one we have been above considering, is condemned as having what is called in technical language, an "*illicit process*;" that is, an *unauthorized proceeding*, from a term *un*distributed in the *Premise*, to the same, *distributed*, in the Conclusion: or in other words, taking a term *more extensively* in the Conclusion than it had been taken in the Premise; which is, in fact, introducing an additional term.

§ 4. The examples that have been all along given, both of correct-reasoning and of Fallacy, have been, designedly, the *simplest and easiest* that could be framed.

And hence, a thoughtless reader, observing that the rules given, and the technical language employed, tho' not difficult to learn, are yet *less* easy than the examples themselves to which these are applied, may be apt to fancy that his labour has been wasted; and to say, "why, common-sense would show any one the soundness of the reasoning, or the unsoundness, in such examples as these, with less trouble than it costs to learn the rules, and the technical terms."

And a beginner in Arithmetic might say the same. For the examples usually set before a learner, are, purposely, such easy questions as he could answer "in his head" (as we say) with less trouble than the arithmetical rules cost him.

But then, by learning those rules, *thro' the means of* such simple examples, he is enabled afterwards to answer with little difficulty such arithmetical questions as would be perplexing and laborious, even to a person of superior natural powers, but untaught.

It is the same in the learning of a foreign Language. The beginner has to bestow more pains on the translating of a few simple sentences, than the matter of those sentences is worth. But in the end, he comes to be able to read valuable books in the Language, and to converse with intelligent foreigners, which he could not otherwise have done.

And so also, in the present case, it will be found that, simple as are the examples given, not only all valid Reasoning, on whatever subjects, may be exhibited, and its validity shewn, in the form that was first put before you, but also, most of the Sophistical-arguments [Fallacies] by which men are every day misled, on the most important subjects, may be reduced into the same forms as those of the examples lately given.

Hume's argument against Miracles as believed on *Testimony*, which was explained in a former Lesson, is an instance of this. And numberless others might be given.

§ 5. For example, there is an erroneous notion commonly to be met with, which is founded on a fallacy that may be thus exhibited as a case of undistributed middle-term: "A man who is indifferent about all religion, is one who does not seek to force his religion on others;" (for tho' this is far from being universally *true*, it is commonly *believed*) "this man does not seek to force his religion on others; therefore he is indifferent to all religion."

Again, as an example of the other kind of fallacy above-mentioned, the "illicit-process" of the Major-term, we may exhibit in that form the sort of reasoning by which one may suppose the Priest and the Levite, in the Parable of the good Samaritan, to have satisfied themselves that the poor wounded *stranger* had no claim on them as a *neighbour*;—a kind of procedure of which one may find instances in real life in all times:

"A kinsman or intimate acquaintance has a claim to our neighbourly good-offices: this man however is not a kinsman &c., therefore he has no claim &c." Again, "a Nation which freely admits our goods, ought to be allowed freely to supply us with theirs: but the French do not freely admit our goods: therefore &c." Again, "Nations that have the use of money, and have property in land, are subject to the evils of avarice, of dishonesty, and of abject poverty; but savage nations have not the use of money &c. &c.

And again, "A kind and bountiful landlord ought to be exempt from lawless outrage; but this man is *not* a kind and bountiful landlord; therefore, &c."

It will be found a very useful exercise to select for yourself a number of other arguments, good or bad, such as are commonly to be met with in books or conversation, and to reduce them to the most regular form they will admit of, in order to try their validity by the foregoing rules.

You must keep in mind however (what was said in the first Lesson) that technical terms and rules will be rather an encumbrance than a help, unless you take care not only to understand them thoroughly, but also to learn them so perfectly that they may be as readily and as correctly employed as the names of the most familiar objects around you.

But if you will take the trouble to do this *once for all*, you will find that in the end, much trouble will have been saved. For, the explanations given of such technical-terms and general rules, when thoroughly learnt, once, will save you the necessity of going thro' nearly the *same* explanation, *over and over again* on each separate occasion.

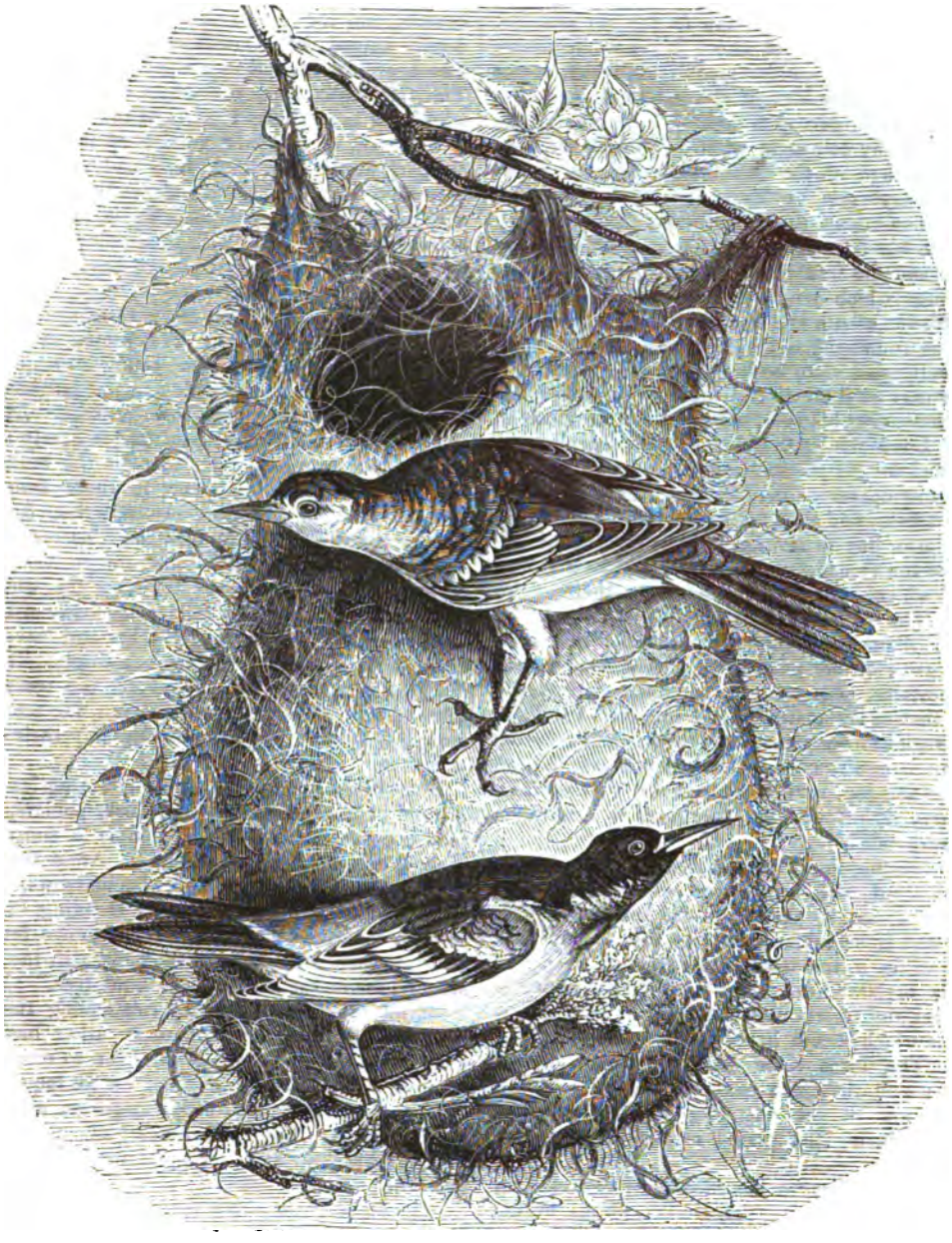
In short, the advantage of technical-terms is just like what we derive from the use of *any other* Common-terms. When, for instance, we have once accurately learnt the definition of a "Circle," or have had fully described to us what sort of creature an "Elephant" is, to say "I drew a Circle," or, "I saw an Elephant," would be sufficiently intelligible, without any need of giving the description or definition at full length, over and over again, on every separate occasion.

MIS-SPENT TIME.

THERE is no remedy for time mis-spent;
No healing for the waste of idleness,
Whose very languor is a punishment
Heavier than active souls can feel or guess.
O, hours of indolence and discontent,
Not now to be redeem'd! ye sting not less
Because I know this span of life was lent
For lofty duties, not for selfishness,
Not to be wiled away in aimless dreams,
But to improve ourselves, and serve mankind,
Life and its choicest faculties were given.
Man should be ever better than he seems;
And shape his acts, and discipline his mind,
To walk adorning earth, with hope of heaven.

SIR AUBREY DE VERE

THE BALTIMORE ORIOLE.



THE BALTIMORE ORIOLE AND NEST.

High on yon poplar, clad in glossiest green
The orange, black-capped Baltimore is seen.
The broad extended boughs still please him best,
Beneath their bending skirts he hangs his nest;
There his sweet mate, secure from every harm,
Broods o'er her spotted store, and wraps them warm;
Lists to the noontide hum of busy bees,
Her partner's mellow song, the brook, the breeze;
These, day by day, the lonely hours deceive,
From dewy morn, to slow descending eve.
Two weeks elapsed, behold a helpless crew!
Claim all her care and her affection too;
On wings of love the assiduous nurses fly,
Flowers, leaves, and boughs abundant food supply;
Glad chants their guardian as abroad he goes,
And waving breezes rock them to repose.

ALEXANDER WILSON.

THE Baltimore Oriole is a very interesting bird, well known in North America from Canada to Mexico, and is even found as far south as Brazil. From its bright colours, and from the hanging nest which it makes in the willow, walnut, or tulip-tree adjoining the farm-house, it is generally known by such familiar names as hang-nest, hanging-bird, golden robin, fire-bird, &c. The title of Baltimore-bird is derived from its colours (which are black and orange) being those of the arms or livery of Lord Baltimore, formerly proprietary of Maryland.

Among the beautiful scenery which adorns the banks of the Mississippi and the Ohio rivers, the traveller is attracted by the clear mellow notes of this brilliant bird. The Oriole moves up and down with a graceful motion among the pendulous branches of the lofty tulip-trees, seeking from the expanding leaves and opening blossoms the caterpillars and green beetles which contribute to its food. From the accounts of Audubon and Wilson, we gather some interesting particulars concerning the habits of this bird. It is a bird of passage, arriving in Pennsylvania from the south, perhaps from Mexico, or even a more distant region, about the beginning of May, and departing towards the latter end of August or beginning of September. It approaches the planter's house, and searches among the surrounding trees for a suitable place in which to settle for the season. It prefers the trees that grow on the sides of a gentle declivity. The choice of a twig being made, the male

bird becomes extremely conspicuous. He flies to the ground, searches for the longest and driest filaments of the moss which is known in Louisiana as Spanish beard, and whenever he finds one fit for his purpose, ascends to the favourite spot where his nest is to be, uttering all the while a continued chirrup, which seems to imply that he fancies himself the acknowledged king of the woods. This chirrup is emitted in an angry tone whenever an enemy comes in sight. This clever bird has taken advantage of the introduction of new materials into Pennsylvania by Europeans to improve the structure of his nest, so that the women in the country are obliged to watch their thread that may be bleaching in the fields, and the farmer to look to his young grafts, that the strings which secure it be not carried off by the bird. Skeins of silk and hanks of thread have been found hanging round the Baltimore's nest, but so interwoven and entangled as to be useless to their owners.

Whatever may be the material used by the bird, his mode of commencing his nest, observed by Audubon in the state of Louisiana, is as follows.—On reaching the branch selected for his purpose, he fastens with bill and claws, in a most dexterous manner, one end of the moss or thread to a twig, and then taking up the other end, he secures that also, but to another twig a few inches off so as to leave the thread floating in the air like a swing, the curve of which is about seven or eight inches from the twigs. The female now comes to his assistance with another filament of moss, or thread. She duly inspects the work of her partner, and then commences her own operations, placing her thread in an opposite direction to that of her mate. Thus the pair work on, making the various lines cross and recross each other so as to form an irregular net. Thus they weave it from the bottom to the top, until it is so secure that no tempest can carry it off without breaking the branch to which it is suspended.

It is an interesting fact that this nest made in Louisiana, is not lined with any warm substance such as wool, cloth, &c., but is placed on the north-east side of the tree, and is so interwoven that the air can pass through it; while if the birds had travelled as far as Pennsylvania, or New York, they would have formed it of the warmest and softest materials, and have placed it in a position which would have left it exposed to the sun's rays. The birds seem perfectly aware of the intense heat which they will have to encounter in the former State, and of the changing weather which is likely to occur during the period of incubation in the latter.

A considerable difference has also been observed in the neatness and finish of the nests as well as in the materials. Wilson thus notices the manner of building among the Baltimores:—

Some appear far superior workmen to others; and probably age may improve them in this as it does in their colours. I have a number of their nests now before me, all completed and with eggs. One of these, the neatest, is in the form of a cylinder, of five inches diameter, and seven inches in depth, rounded at the bottom. The opening at top, is narrowed by a horizontal covering, to two inches and a half in diameter. The materials are flax, hemp, tow, hair, and wool, woven into a complete cloth, the whole tightly sewed through and through with long horse hairs, several of which measure two feet in length. The bottom is composed of thick tufts of cow hair, sewed also with strong horse hair. This nest was hung on the extremity of the horizontal branch of an apple-tree, fronting the south-east, was visible one hundred yards off, though shaded from the sun; and was the work of a very beautiful and perfect bird.

The eggs are five, white, slightly tinged with flesh colour, marked on the greater end with purple dots, and on the other parts with long hair-like lines intersecting each other in a variety of directions.

This bird is seven inches in length, with a straight, sharp, bluish bill. The wings are rather long, and slightly rounded, the tail is forked. The plumage is glossy, and of the most brilliant colouring. The whole of the under parts in the male bird, with the lesser wing-coverts, and lower part of the back, are bright orange, deeply tinged with vermillion on the breast and neck. The head, throat, and upper part of the wings are black. The feet light blue, the edges of the feathers in the wings and tail, white; the iris of the eye, hazel.

The song of this bird consists of three or four, or at most eight or ten, loud, full, and mellow notes, very agreeable to the ear. Wilson says that there is a certain wild plaintiveness and *naiv'té* in the song that is extremely interesting, with something of the pleasing tranquillity of a careless plough-boy, whistling merely for his own amusement.

In Louisiana, the Baltimore Oriole frequently rears two broods in a season. The period of incubation is fourteen days. Before the young are quite able to leave the nest they often cling to the outside, and creep in and out of it like young wood-peckers. After leaving the nest they follow their parents for nearly a fortnight, and are fed by them. As soon as the mulberries and figs become ripe, they resort to these fruits, and are equally fond of cherries, strawberries, &c. During spring they principally feed on insects which they search for with great activity among the leaves and branches, seldom pursuing them on the wing. When the young birds are fully able to take care of themselves, they generally part from each other and leave the country, as their parents had come, singly. Their flight during migration is high above all the trees, but they descend about the setting of the sun, for rest and food, mounting again at sunrise and pursuing their way singly as before.

The streets of the cities in North America have been planted in late years with Lombardy poplars, and since that event the Baltimore Oriole is a constant visitor even in the noisiest situations. "Amid the noise and tumult of coaches, drays, and wheelbarrows, and the din of the multitude, they are heard chanting 'their native wood-notes wild,' sometimes too within a few yards of an oysterman, who stands bellowing with the lungs of a stentor, under the shade of the same tree." The movements of these birds as they run among the branches, are different from those of most other birds. They cling frequently by the feet in order to reach an insect at such a distance from them as to require the full extension of their neck, body, and legs, without letting go their hold. They sometimes glide as it were along a small twig, and at other times move sidewise, with a graceful motion.

The plumage of these birds does not attain its full brilliancy until the third year. The Baltimore Oriole may be easily kept in cages, and may be fed on dried figs, raisins, hard-boiled eggs, and insects.

THE TWO PAGES.

THE Caliph Harun*, as historians tell,
Ruled, for a tyrant, admirably well;
Where his own pleasures were not touch'd, to men
He was humane, and sometimes even then;
Harun was fond of fruits, and gardens fair,
And woe to all whom he found poaching there.
Among his pages was a lively boy,
Eager in search of every trifling joy
His feelings vivid, and his fancy strong,
He sigh'd for pleasure while he shrank from wrong;
When by the Caliph in the garden placed,
He saw the treasures, which he long'd to taste;
And oft alone he ventured to behold
Rich hanging fruits with rind of glowing gold;
Too long he staid forbidden bliss to view,
His virtue failing, as his longings grew.

* The sovereign here meant is the Harun Alreschid, or Harun al Rashid, who died early in the ninth century; he is often the hearer, and sometimes the hero, of a tale in the *Arabian Nights' Entertainments*.

Athirst and wearied with the noon-tide heat,
Fate to the garden led his luckless feet;
With eager eyes and open mouth he stood,
Smelt the sweet breath, and touched the fragrant food;
The tempting beauty, sparkling in the sun,
Charmed his young sense—he ate, and was undone:
When the fond glutton paused, his eyes around
He turned, and eyes upon him turning found;
Pleased he beheld the spy, a brother Page,
A friend allied in office and in age;
Who promised much that secret he would be,
But high the price he fixed on secrecy.
"Were you suspected, my unhappy friend,"
Began the boy, "where would your sorrows end?
In all the palace there is not a page
The Caliph would not torture in his rage:
I think I see thee now impaled alive,
Writhing in pangs—but come, my friend, revive!
Had some beheld you, all your purse contains
Could not have saved you from terrific pains;
I scorn such meanness; and, if not in debt,
Would not an asper on your folly set."
The hint was strong; young Osmyn searched his store
For bribes, and found he soon could bribe no more;
That time arrived, for Osmyn's stock was small,
And the young tyrant now possessed it all;
The cruel youth, with his companions near,
Gave the broad hint that raised the sudden fear;
Th' ungenerous insult now was daily shown,
And Osmyn's peace and honest pride were flown;
Then came augmenting woes, and fancy strong
Drew forms of suffering, a tormenting throng;
He felt degraded, and the struggling mind
Dared not be free, and could not be resigned;
And all his pains and fervent prayers obtained,
Was truce from insult, while the fears remained.
One day it chanced that the degraded boy
And tyrant-friend were fixed at their employ;
Who now had thrown restraint and form aside,
And for his bribe in plainer speech applied:
"Long have I waited, and the last supply
Was but a pittance, yet how patient I!
But give me now what thy first terrors gave,
My speech shall praise thee, and my silence save."
Osmyn had found, in many a dreadful day,
The tyrant fiercer when he seemed in play:
He begged forbearance; "I have not to give;
Spare me awhile, although 'tis pain to live:
Oh! had that stolen fruit the power possessed
To war with life, I now had been at rest."
"So fond of death," replied the boy, "'tis plain
Thou hast no certain notion of the pain;
But to the Caliph were a secret shown,
Death has no pain that would be then unknown."
Now, says the story, in a closet near,
The Monarch seated, chanced the boys to hear;
There oft he came, when wearied on his throne,
To read, sleep, listen, pray, or be alone.
The tale proceeds, when first the Caliph found
That he was robbed, although alone, he frowned,
And swore in wrath, that he would send the boy
Far from his notice, favour, or employ;
But gentler movements soothed his ruffled mind,
And his own failings taught him to be kind.
Relenting thoughts then painted Osmyn young,
His passion urgent, and temptation strong;
And that he suffered from that villain spy
Pains worse than death till he desired to die;
Then if his morals had received a stain,
His bitter sorrows made him pure again;
To Reason, Pity lent her powerful aid,
For one so tempted, troubled, and betrayed;
And a free pardon the glad boy restored
To the kind presence of a gentle Lord;
Who from his office and his country drove
That traitor-friend, whom pains nor prayers could move;
Who raised the fears no mortal could endure;
And then with cruel av'rice sold the cure.—CRABBE.

THE prejudice of education, the pride of place, the ignorance which we might have overcome, or the glory of this world's dominion, will yield us no apology for error before the throne of God.—BISHOP HOPKINS.

EASY LESSONS IN CHESS.

XIV.

THE KING'S GAMBIT.

WHITE.	BLACK
1. K. P. two squares.	1. K. P. two squares.
2. K. B. P. two squares.	2. P. takes P.
3. K. Kt. to K. B. third square.	3. K. Kt. P. two squares.
4. K. B. to Q. B. fourth square.	

IN our last lesson we gave you a glimpse of this brilliant species of opening, and made a few explanatory remarks on the first three moves. You saw how fatal it was to Black's game to move out the K. B. P. on the fourth move. In the present game he will adopt sounder play. Your fourth move is among the best: you attack the weakest point of his game and prepare to castle. Black's fourth move is a mooted point among Chess authorities: he may advance the K. Kt. P. upon your Kt., or he may place his K. B. on the K. Kt. second square. The former move is preferred by Carrera, Salvio, Lionardo, Sarratt, and others; while the latter is advocated by Philidor, Cozio, Ponziani, Del Rio, and others. We will select a few games illustrative of both modes of play, advising the student not to attach himself to either: he will probably get a safer game by playing the Bishop to K. Kt. second, while more brilliant and intricate situations arise from pushing forward the K. Kt. P.

4. K. Kt. P. one square.

If at this point your K. Kt. is sacrificed the game is resolved into the Muzio Gambit, which will be illustrated hereafter.

5. K. Kt. to K. fifth square.

You now threaten his K. B. P., K. R., &c., but he suspends the attack by playing

5. Q. to K. R. fifth square checkg.

If you advance K. Kt. P. one square you lose the game speedily; therefore

6. K. to K. B. square. 6. K. Kt. to K. R. third square,

to prevent the attack threatened at your fifth move.

7. Q. P. two squares.	7. Q. P. one square.
8. K. Kt. to Q. third square.	8. Gambit P. one square.

Not being able to defend the Gambit Pawn from the attack of your Q. B. and K. Kt., Black does well to advance it. You would play badly by taking it, therefore,

9 K. Kt. P. one square. 9. Q. to K. R. sixth square checkg.

Instead of this move, Black ought to have played Q to K. second square; but the check with the Q. was tempting, especially as there seems a chance of following up the apparent advantage by playing Q. to K. Kt. seventh square. Black's ninth move, however, is a very bad one, and has been shown by Greco in several variations to be fatal.

If you play as your best move

10. King home,

Black loses the Q. by attacking your K. R.; for example,

10. Q. to K. Kt. seventh square.

You then play K. Kt. to K. B. second square, which protects the Rook, and hinders the advance of the Gambit Pawn; and you afterwards win his Q. by playing K. B. home. But if instead of falling into this trap, or allowing you to win the Q. by playing your Kt. to K. B. fourth square, Black play

10. Q. to K. R. fourth square,

the loss is not so immediate, or apparent to the young player, who is apt to estimate the state of the game by numerical superiority without due regard to position; but it will be seen that Black has by his useless check lost time, and hampered his game, while yours is peculiarly susceptible of improvement.

11. K. Kt. to K. B. fourth square. 11. Q. to Q. R. fourth square checkg.

It would perhaps have been better for Black to have played Q. to K. Kt. fourth square, since he has nothing

to fear from the discovered check upon his Q. She is now in a position to be hunted about by your pieces, which are gradually brought out, while his remain idle spectators of the conflict. The following moves are quite in the style of Greco.

12. Q. B. to Q. second square. 12. Q. to Q. Kt. third square.
13. K. Kt. to Q. fifth square.

If he capture your Q. Kt. P. you will win his Q. by playing Q. B. to its third square. If he play Q. to Q.B. third square, you will also win the Q. by playing K. B. to Q. Kt. fifth square, because if he take this B. you fork his K. and Q. with your Kt. He therefore plays

13. Q. takes Q. P.
14. K. B. to Q. third square.

In order to preserve his Rooks, the one from the attack of your Kt. and the other from your K. B., he plays

14. Q. to Q. B. fourth square.
15. Q. B. to K. third square. 15. Q. to Q. R. fourth square checkg.
16. Q. Kt. P. two squares. 16. Q. to Q. R. fifth square.
17. K. B. to Q. Kt. fifth sq. checkg. 17. Q. takes K. B.
18. K. Kt. takes Q. B. P. checking and winning Q

The following game affords a brilliant specimen of successful defence of the King's Gambit. The ingenious manner in which the second player gets the attack into his own hands, and the bold and skilful sacrifices by which he maintains it are all worthy of attentive study. The defence to this game is by M. de la Bourdonnais, and may serve to illustrate the style of play of that great master.

BLACK.	WHITE.
1. K. P. two squares.	1. K. P. two squares.
2. K. B. P. two squares.	2. P. takes P.
3. K. Kt. to K. B. third square.	3. K. Kt. P. two squares.
4. K. B. to Q. B. fourth square.	4. K. Kt. P. one square.
5. K. Kt. to K. fifth square	5. Q. to K. R. fifth sq. checking.
6. K. to K. B. square.	

Thus far the moves are the same as in the last game. By advancing the Gambit Pawn at this stage of the game, and allowing the first player to make the most of the attack which he has upon your K. B. P., you resolve the game into the Cochrane gambit as it is called, although the more correct term would be the Cochrane defence to the gambit. Mr. Cochrane examined this move with considerable skill in his Treatise published in 1822, and hence Chess players have attached his name to this species of the gambit.

6. Gambit Pawn advances.
7. K. Kt. takes K. B. P.

This is not a safe move. The Kt. and B. may make a skirmish, and perhaps win a Rook, but in the meantime your Q. and Pawns are making dangerous advances. For Black's seventh move, Q. P. two squares has been recommended.

7. Q. Kt. to Q. B. third square.

To bring out a piece at the proper time to act as a *corps de reserve* is in the best style of chess play. The Q. Kt. posted at Q. B. third square is often of powerful assistance in gambit games.

8. Q. P. two squares. 8. K. B. to K. Kt. second square.
9. Q. B. P. one square. 9. K. Kt. to K. B. third square.
10. Kt. takes K. R. 10. Q. P. two squares.

You do not stay to retake this Kt., for you would lose time and the attack in doing so. The Kt. is now as completely out of the game as if he were off the board; you therefore play so as to get one of your knights to assist the attacking combination of Q. and Pawns.

11. K. P. takes Q. P.

Black is tempted to take your K. P. with his Q. P. in order to drive away the Q. Kt.: he would probably have done better by taking the P. with his Q. B.

11. K. Kt. to K. fifth square,

threatening mate, which he prevents by

12. Q. to K. square. 12. K. Kt. P. one square.

You thus protect the Kt.—prevent an exchange of Queens which would be fatal to your game, and narrow he chances of escape for the Black King.

13. K. B. to Q. third square.

This is perhaps his best move, but the precision and foresight with which De la Bourdonnais played would have ensured him the victory in a less favourable position.

13. P. takes K. Kt. P. chg.
14. K. takes P. 14. Q. B. to K. R. sixth sq. chg.
15. K. to K. Kt. sq. 15. Q. Kt. takes Q. P.

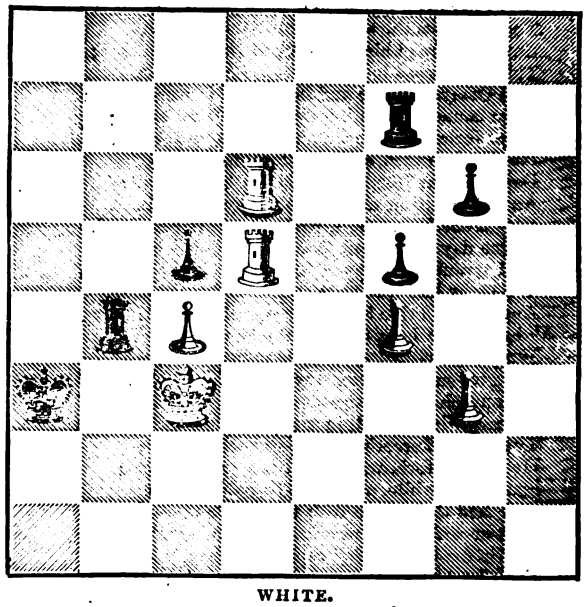
White now allows his adversary the move, which he has so long desired, but it is now of no use to him, for whatever he does White must win; for example,

16. Q. takes K. Kt. 16. Q. takes Q.
17. K. B. takes Q. 17. Q. Kt. gives checkmate.

But if at the 16th move he play Q. B. P. takes Q. Kt. the game may be prolonged a few moves but cannot be saved. Or if he play at the 16th move K. R. P. takes Kt. P. you give the mate with the Q. Kt. immediately.

PROBLEM XIII. *White to move first, and to checkmate in three moves.*

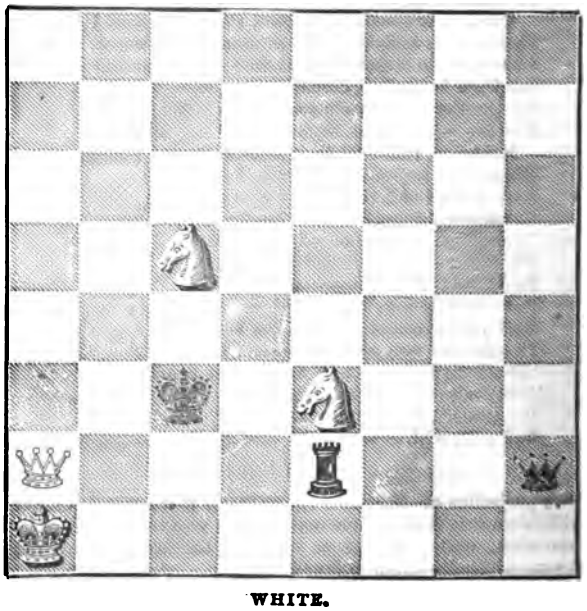
BLACK.



WHITE.

PROBLEM XIV. *White to move, and mate on the third move.*

BLACK.



WHITE.

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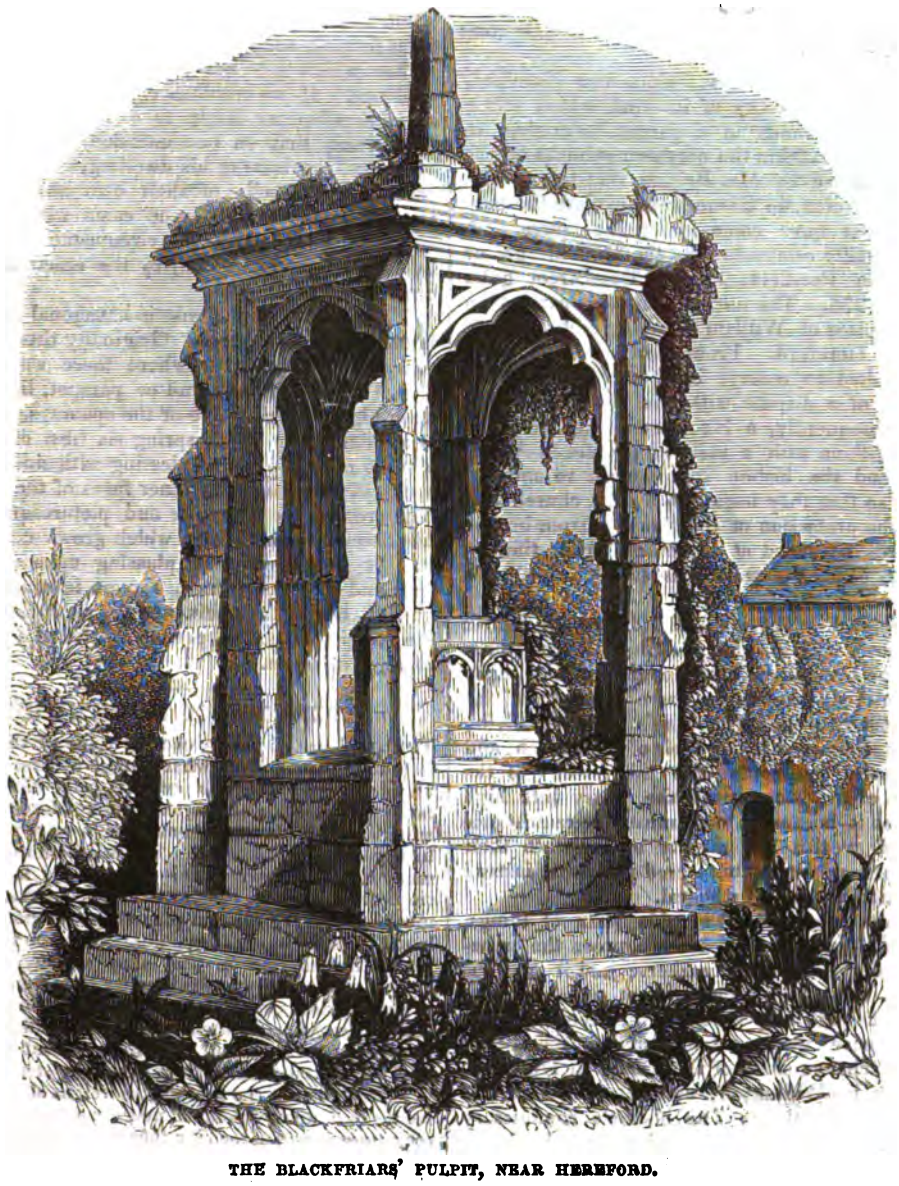
PREACHING CROSSES.



THE BLACKFRIARS' PULPIT, NEAR HEREFORD.

This interesting relic of ancient art carries us back to a remarkable era in the history of the Roman Catholic Church. Stone pulpits, either standing alone, or in connexion with cloisters, (under the shelter of which the assembled hearers could listen to the preaching of the Friar who was addressing them) are connected with the history of the different orders of mendicant or begging friars. These men rose up to supply the deficiency occasioned by a gross neglect of duty on the part of the secular clergy. Long before the thirteenth century the monastic orders had degenerated from their primitive austerity, and were totally given up to luxury and indolence, dissipation and licentiousness, so that they were at length neither willing nor able to instruct the people in any adequate manner, while their evil example was productive of the most injurious effects. In this state of things new orders of men arose, who were destitute of fixed posessions, severe in their manners, and very active in the duties of preaching and prayer. These were the four orders of Mendicant Friars commonly denominated the Franciscans, the Dominicans, the Carmelites, and the Augustines. Speaking of these Friars, Warton, in his *History of English Poetry*, remarks,—

'These societies soon surpassed all the rest, not only in the purity of their lives, but in the number of their privileges, and the multitude of their members. Not to mention the success which attends all novelties, their reputation rose quickly to an amazing height. The popes, among other immunities, allowed them the liberty of travelling

wherever they pleased, of conversing with people of all ranks, of instructing the youth and the people in general, and of hearing confessions without reserve or restriction; and as on these occasions, which gave them opportunities of appearing in public and conspicuous situations, they exhibited more striking marks of gravity and sanctity than were observable in the conduct and deportment of the members of other monasteries, they were regarded with the highest esteem and veneration throughout all the countries of Europe.

Such were the Friars Preachers at the commencement of their career; but we find that in the end they also abused their privileges, and became notorious for the frauds and artifices by which they enriched their convents.

The Preaching Cross, or Stone Pulpit, near Hereford, is one of the very few relics of its kind, which relate to this period. It stands in a garden belonging to Coningsby Hospital, within the northern suburbs of the city; and it is stated by Mr. Britton that this Cross, and one at Iron Acton, in Gloucestershire, are the only stone pulpits that have come under his notice. A priory was originally established by the Dominicans, or Black Friars, in Portfield, beyond Bye-Street gate, about the year 1276. The undertaking was carried on beneath the auspices of William Cantalupe, brother to the Bishop of Hereford. From this site they were, however, compelled to remove by order of the bishop, in consequence of a dispute with the members of the cathedral. Subsequently, a Sir John Daniel, or Deinville, presented them with a piece of ground in Wide-Marsh field, and the bishop was induced to annex a second piece, so that they began to build a church and priory under the protection of their new patron; but he being afterwards beheaded at Hereford, in the time of Edward the Second, the work was suspended till the next reign.

It was completed in the reign of Edward the Third; and that monarch with his son, the Black Prince, three archbishops, one bishop, the king's confessor, and many other distinguished personages, were present at the dedication of the church. The king's confessor dying in Hereford, was interred in the choir of the church; and this circumstance, combining with the novelty of the new religious order, soon raised the priory into high repute, so that it became a not unusual circumstance for persons of wealth and dignity to bequeath their bodies to be interred within this sacred inclosure, instead of within the neighbouring cathedral.

As a natural consequence of this state of things, mutual jealousies and disputes arose between the cathedral clergy and the Friars Preachers; and it may be remarked that these friars were almost universally at variance with the regular monks, and the secular clergy. In 1343 a license was granted enabling the Friars Preachers to exchange some of their lands in Hereford, for other lands in Willington; and this privilege was the occasion of disputes. The bishop's commissary having attempted to exercise authority over the friars, Richard Barrets, their prior, instituted a suit before the Archbishop of Canterbury against the bishop and his commissary. The prior died before it was decided; but his successor prosecuted the suit, and obtained a decree, dated July 6th, 1351, in which it was stated that the order of Friars Preachers, by indulgences and privileges granted from the see apostolic, were exempted from the jurisdiction of any ordinary, and especially from that of the Bishop of Hereford for the time being, or any of his ministers or commissaries, unless the said bishop or his commissary were commissioned thereunto from the see apostolic.

It appears to have been a favourite practice of these friars to preach to large assemblies of people from crosses of the kind above represented, and by the zeal thus evinced they gained a large portion of that popularity with which they were generally received. The present cross at Hereford was probably attached to the cloisters of the priory; though it now forms, with a few fragments of walls, the only architectural remains of the monastic buildings of which it constituted a part.

Yet when we consider its exposure during so long a period to the vicissitudes of the weather, and to the same evils which many ancient buildings have suffered from in a marked degree, we may congratulate ourselves that so interesting a relic is still in existence, and has not suffered irretrievably from time, or from wanton spoliation. The evidence relating to its origin and use is too plain and well authenticated to need any comment; but we may remark that several conjectures have been formed, and causes ascribed for the erection of the edifice which are not capable of being borne out by evidence. If we recollect rightly, one of these conjectures ascribes its origin to a supposed miracle. The fable runs, that on one occasion, when the Bishop of Hereford was leaving his dwelling, and approaching his cathedral, the bells of their own accord struck up a joyous peal as soon as he came within sight of the church. This miraculous circumstance was celebrated by the prelate, (it is said) by the erection of the stone cross.

The Black Friars' Cross is hexagonal in its form, and is elevated on six steps. Originally there was an open entrance on one side, where there was an additional step. A sort of hand-rail or parapet, little more than knee-high, closed in five of the openings. In the centre is a pillar, from which spring six ribs, diverging under a stone roof, and communicating with similar ribs, which are continued down the inner faces of the six buttresses. The cross has a venerable and picturesque appearance, heightened by the foliage which grows near and around it. It is altogether a pleasing memorial of former ages and of a zeal which, though in some respects misguided, had at least this merit, that it protested against the grosser evils of the period, and led to a partial reformation of manners.

THE USES OF MINUTE THINGS.

THE influence of plants, even of those of the lowest grade, is much greater than what would at first appear to an unreflecting observer; for even the jelly-like forms of vegetation seen floating on stagnant water afford nourishment to animalcules, which are themselves to serve as food to more highly-developed animals. Sea-weeds afford sustenance to many fish, and even to the dugong and lamantine of the tropical seas, as to the huge hippopotamus. Lichens and mosses are among the first plants to grow upon newly-formed lands, and may be seen vegetating even upon the barren rock. These, insignificant as they may appear, afford by their decay a portion of organized matter to barren soil, and allow of the vegetation of grasses and other small herbaceous plants which, decaying in their turn, give additional organized matter to enrich the soil, and thus prevent that which has been long in cultivation from becoming sterile.

Myriads also of the minutest as well as of the largest living beings feed upon vegetable matter; even the insignificant rock-moss serves as food for the rein-deer, the pasture-grasses for herds of ruminating cattle, and the leaves of trees for the largest quadrupeds now seen upon the surface of the earth. From the great similarity in nature of the different pasture-grasses in every part of the world, man has been able to transport cattle into various countries of the earth which he has chosen to colonize. Some fruits afford nutriment to birds and small quadrupeds; while others, employed as such by man, form, with vegetables, the chief objects of attention to the gardener, and the principles of their culture the science of horticulture; while the cereal grasses, as yielding the greater portion of the food of man, form the principal objects of agriculture.—DR. ROYLE.

ALL war is to be carried on, partly by our own strength, and partly by that of allies and auxiliaries: so in our Christian warfare against the temptations of the world, the things which properly answer these two, are watchfulness and prayer; by watchfulness, we exert and employ our strength; and by prayer we engage God's.—DEAN SOUTH.

EASY LESSONS ON REASONING.

Lesson VII.

§ 1. We have seen that all sound Reasoning consists in referring that of which we would (in the conclusion) affirm or deny something, to a *Class*, of which that affirmation or denial may be made. Now "the referring of anything to a Class," means (as you will perceive on looking back to the examples that have been given) to *affirm of it a Term denoting a Class;* which Term, you will have observed, is the Middle-term of the Syllogism.

We are next led therefore to inquire what terms may be affirmatively predicated of what others.

It is plain that a *proper-name*, or any other term that stands for a *single individual*, cannot be affirmed of anything except that very individual. For instance "Romulus" — the "Thames" — "England" — "the founder of Rome"—"this river," &c., denoting, each, a *single* object, are thence called "*Singular-terms:*" and each of them can be affirmed of that single object only, and may, of course, be denied of any thing else.

When we say "Romulus was the founder of Rome," we mean that the two terms stand for the same individual. And such is our meaning also when we affirm that "this river is the Thames."

On the other hand those terms which are called "*Common*" (as opposed to "Singular") from their standing for any, or for every, individual of a Class,—such as "man," "river," "country"—may of course be affirmed of whatever belongs to that Class: as "the Thames is a river;" "the Rhine and the Ganges are rivers."

§ 2. A Common-term is thence called (in relation to the "Subjects" to which it is applicable) a "*Predicable;*" that is, *affirmatively*-predicable; from its capability of being affirmed of another Term.

A Singular-term on the contrary, may be the *Subject* of a proposition, but not the *Predicate:* unless of a *Negative*-proposition; (as "the first-born of Isaac was not Jacob") or unless the Subject and Predicate be merely two expressions for the same individual; as in some of the examples above.

You are to remember however that a Common-term must be one that can be affirmed of several other terms, *in the same sense*, as applied to each of them; as "vegetable," to "grass," and to an "oak." For, different as these are, they are both "vegetables" in the same sense: that is, the word "vegetable" denotes the same thing in respect of both of them: [or, "denotes something *common* to the two."]

But there are several proper-names which are borne, each, by many individuals; such as "John" "William" &c., and which are said to be (in ordinary discourse) very *common* names; that is, very *frequent*. But none of these is what we mean by a "*Common-term;*" because, tho' applied to several persons, it is not in the same sense, but always, as denoting in each case, *one distinct individual.*

If I say "King Henry was the conqueror at Agincourt" and, "the conqueror of Richard the Third was King Henry," it is not, in sense, *one* term, that occurs in both those propositions. But if I say of each of these two individuals that he was a "King," the term "King" is applied to each of them in the same sense.

§ 3. A Common-term, such as "King" is said to have several "*Significates;*" that is, things to which it may be applied: but if it be applied to every one of these *in the same sense*, [or denotes in each of them, the same thing] it has but *one* "*signification.*" And a Common-term thus applied, is said to be employed "univocally."

If a term be used in several senses, it is, in meaning, not *one* term only, but *several*. Thus, when "Henry" (or any other such name) is applied to two individuals to denote, in each case, *that one distinct person*, it is used not as *one* term, but as *two;* and it is said to be applied to those two, "*equivocally.*"

The like often occurs in respect of Common-terms also; that is, it often happens that one word or phrase will be not merely *one* but *several* Common-terms.

Take for example the word "Case," used to signify a kind of "*covering;*" and again (in Grammar) an inflection of a noun; (as "him" is the accusative [or objective] *case* of "he") and again, a "*case*" such as is laid before a lawyer. This word is, in sense, three; and, in each of the three senses may be applied "*univocally*" to several things which are, in that sense, signified by it. But when applied to a *box* and to a *grammatical case*, it is used "equivocally."

§ 4. That process in the mind by which we are enabled to employ Common-terms, is what is called "Generalization;" Common-terms being often called also "*General*-terms."

When, in contemplating several objects that *agree* in some point, we "*abstract*" [or *draw off*] and consider separately, that point of agreement, disregarding everything wherein they differ, we can then designate them by a *Common-term*, applicable to them, only in respect of that which is "*common*" to them all, and which expresses nothing of the differences between them.

Thus we may contemplate in the mind several different "kings;" putting out of our thoughts the name and individual character, of each, and the times and places of their reigns, and considering only the *regal Office* which belongs to all and each of them. And we are thus enabled to designate any or every one of them by the "common" [or general] term, "king." And so, in the case of any other common-term.

The "*Abstraction*" which here takes place, is so called from a Latin-word originally signifying to "draw off;" because we separate, and as it were, draw off, in each of the objects before us, that point,—apart from every other—in which they are alike.

It is by doing this, that generalization is effected. But the two words have not the same meaning. For tho' we cannot "*generalize*" without "*abstracting*," we may perform Abstraction without Generalization.

§ 5. If, for instance, any one is thinking of "the Sun," without having any notion that there is more than *one* such body in the Universe, he may consider it without any reference to its *place* in the sky; whether rising, or setting, or in any other situation; (tho' it must *be* always actually to *some* situation) or again he may be considering its *heat* alone, without thinking of its *light;* or of its light alone; or of its apparent *magnitude*, without any reference either to its light or heat. Now in each of these cases there would be *Abstraction;* tho' there would be no *Generalization*, as long as he was contemplating only a *single* individual; that which we call the "Sun."

But if he came to the belief (which is that of most Astronomers) that each of the *fixed Stars* is a body affording light and heat from itself, as our Sun does, he might then, by *abstracting* this *common* circumstance, apply to all and each, of these (the Sun of our System, and the Stars) one common-term denoting that circumstance; calling them all, "Suns." And this would be, to "*generalize.*"

In the same manner, a man might, in contemplating a single mountain, (suppose, Snowdon) make its *height* alone, independently of everything else, the subject of his thoughts; or its *total bulk;* disregarding its *shape*, and the *substances* it is composed of; or again, its shape alone; and yet while thus abstracting, he might be contemplating but the single individual. But if he abstracted the circumstance *common* to Snowdon, Etna, Lebanon, &c., and denoted it by the common-term "Mountain," he would then be said to generalize. He would then be considering each, not, as to its *actual existence as a single individual*, but as to its general character, as being of *such a description* as would apply equally to some other single objects.

§ 6. Any one of these Common-terms then serves as a "*Sign*" [or Representative] of a Class; and may be applied to,—that is, affirmed of—all, or any, of the things, it is thus taken to stand for.

And you will have perceived from the above explanations, that what is expressed by a Common-term is merely an *inadequate,—incomplete-notion* [or "view" taken] of *an individual*. For if, in thinking of some individual object, you *retain* in your mind all the circumstances (of character, time, place, &c.) which *distinguish* it (or which might distinguish it) from others, —including the circumstance of *unity*, [or singleness]—then, any name by which you might denote it, when thus viewed, would be a *Singular*-term; but if you *lay aside* and disregard all these circumstances, and abstract [consider separately] merely the points which are *common*—or which conceivably *might* be common—to it with other individuals, you may then, by taking this incomplete view [or "apprehension"] of it, apply to it a name expressing nothing that is *peculiar* to it; and which consequently will equally well apply to each of those others: in short, a Common-term; such as those in the above examples.

§ 7. You are to remember then, that there is not, in the case of these "general" [or common] Terms, (as there is in the case of *Singular*-terms) some real *thing* corresponding to each Term, existing independently of the Term, and of which that term is merely the *name;* in the same manner as "Lebanon" is the name of an actually-existing single individual.

At first sight indeed you might imagine that as any "individual man" of your acquaintance, or "Great Britain" or "the Sun" &c. has an existence in Nature quite independent of the *name* you call it by, so, in like manner, there must be some *one real thing* existing in Nature, of which the Common-term "Man," or the term "Island" is merely the *name*.

And some writers will tell you that this *thing*, which is the subject of your thoughts when you are employing a general-term, is, the "*abstract-idea*" of Man, of Island, of Mountain, &c. But you will find no one able to explain what sort of a thing any such "abstract-idea" can be; which is *one* thing, and yet *not* an *individual*, and which may exist at one and the same time in the minds of *several* different persons.

All the obscure and seemingly-profound disquisitions that you may perhaps meet with, respecting these supposed "abstract ideas," will but perplex and bewilder you.

Whether the writers of these disquisitions have themselves understood their own meaning, we need not here inquire. But the simple explanation that has been above given of the origin and use of Common-terms, you will be able, with moderate attention, clearly to understand. And you will find it quite sufficient for our present purpose.

§ 8. You will perceive from it that the subject of our thoughts when we are employing a Common-term, is, the *Term itself*, regarded as a "*Sign;*" namely a Sign denoting a certain *inadequate* notion formed [or, view taken] of an individual which in some point *agrees with* [or "resembles"] some other individuals: the notion being, as has been said, "inadequate," or "incomplete," inasmuch as it omits all *peculiarity* that *distinguishes* the one individual from the others; so that the same single "Sign" may stand equally well for any of them.

And when several persons are all employing and understanding the same Common-term in the same sense, and are thence said (as some Writers express it) to have "one and the same Idea" at once in the mind of each, this means merely that they are (thus far) all *thinking alike:* just as several persons are said to be all "in one and the *same posture,*" when they have, all of them, their limbs *placed alike;* and to be of one and the *same* complexion, when their skins are coloured alike.

THE SPERM WHALE.

NOTWITHSTANDING its unwieldy bulk, this whale is not deficient in activity. When first pierced by the harpoon, it will tow the attached boat at the rate of more than fifteen miles an hour; but this velocity of motion is the effect of extreme excitement, and does not continue long. Under ordinary circumstances of alarm, as when conscious of being pursued by enemies, its speed averages about eight or ten miles an hour. Whale-boats propelled by both sails and oars, and a ship having the advantage of a strong breeze, will often succeed in overtaking the whales they pursue, or, by their near approach, compel them to seek refuge in the deep. When swimming rapidly, the Cachalot moves with an easy, regular, and majestic pace, the head being much raised above the surface of the sea, and a portion of the back being occasionally exhibited in the action of leaping. The individuals composing a retreating party will sometimes move in lines, like a troop of horse, and exert their peculiar leaping movements, descend, rise, and often even spout simultaneously.

A large party of cachelots gambolling on the surface of the ocean is one of the most curious and imposing spectacles a whaling voyage affords; the huge size and uncouth agility of the monsters, exhibiting a strange combination of the grand and ridiculous. On such occasions, it is not unusual to observe a whale of the largest size leap with the activity of a salmon, display the entire of his gigantic frame suspended at the height of several feet in the air, and again plunge into the sea with a helpless and tremendous fall, which causes the surrounding water to shoot up in broad and lofty columns capped with foam; whilst others of the school leap, or "breach," in a less degree, sportively brandish their broad and fan-shaped flukes in the air, or protrude their heads above the waves, like columns of black rock.

When a boat has approached a whale within a reasonable distance, the harpooner quits his oar and stands in the bow with the harpoon in his hand, until the exertions of the rest of the crew have advanced the boat sufficiently close, and in a favourable position to strike. The first harpoon is then darted, and pierces the body of the whale; the second almost instantaneously follows, with equal success, and the effects become visible at a great distance, as the wounded monster plunges convulsively, casting its flukes high in the air, and raising clouds of foam and lofty columns of water, which obscure and threaten to overwhelm the attacking party. After this first display of surprise and agony, the whale sets off with great swiftness along the surface of the water, drawing after it the attached boat; the line being secured around the logger-head, her oars speak and bristling from either side, and her bow raised high above the level of the sea and enveloped in spray; whilst the water displaced by the velocity of her motion, rises on each side of the depressed stern considerably above the level of the gunwale, threatening an inundation which she appears only to evade by her speed.

About this time, the officer in command resigns the steer-oar to the harpooner, and takes his station in the bow of the boat, where, armed with the lance, he avails himself of every opportunity to haul up close to the whale and dart his weapon into its body.

Finding flight in the horizontal direction insufficient for escape, the whale endeavours to elude his pursuers by "soundings," or descending perpendicularly to a great depth: but this attempt is equally ineffectual with the first, and after a short interval he re-appears on the surface, the boat again approaches, and the attack with the lance is renewed, until exhausted by loss of blood and his strenuous endeavours to escape, the animal becomes perceptibly more feeble in his movements, the sea for some distance around is crimsoned with his blood, and the spout, (also mingled with blood,) as it rises at each aspiration, is scattered conspicuously in the air, like shreds of scarlet cloth. After the slow pace of the whale, and his general air of languor, as well as the jets of dark blood cast from his spiracle, scarce higher than the crests of the waves, would lead to the idea that his efforts are at an end, he again draws the attached boat rapidly over the water, and the contest appears to be renewed; but that is merely the last struggle of the dying cachalot, or as it is termed, "the flurry," and hurrying about, beating the waves with his tail, the creature takes a circuitous rather than a direct course, then turns on his side, his lower jaw falls, and the "monarch of the flood" floats a lifeless mass, over which the waves beat with a low and confused surf.—BENNETT'S *Voyage round the Globe.*

INSECTS INJURIOUS TO THE FARMER.

III.

A TURNIP LEAF ATTACKED BY THE BLACK CATERPILLAR

HAVING, in a late article, described the insect usually called the Turnip-Fly, but which should properly be called the Turnip-Beetle, on account of its horny wing-covers; we now proceed to give a sketch of the history of the Turnip Saw-fly, better known as the Black Caterpillar. This most destructive visitant has necessarily attracted the attentive consideration of naturalists and scientific men for many years past,—for it has done a frightful amount of injury to the valuable crops on which it feeds. Fortunately, its attacks are not equally severe every season, but in dry summers it has occasionally proved a scourge to our land, which, owing to the lateness of the season at which it arrived, and the deficiency of means to check it, has been almost entirely without remedy. Though comparatively little known until a recent period, this enemy of the turnip-crop made its appearance in Norfolk in 1782, where it was noted and described by Mr. Marshall; who also speaks of a visitation from the same insect twenty years previously.

As Mr. Marshall's appears to be the first published account of the black caterpillar, it may be interesting to our readers to give a portion of it. Alluding to the former visitation he says:—

It was observed, that prior to the appearance of the caterpillars great numbers of yellow flies were seen busy among the turnip plants; and it was then suspected that the canker was the caterpillar state of the yellow fly; and since that time it has been remarked that cankers have regularly followed the appearance of these flies. From their more frequently appearing on the sea-coast, and from the vast quantities which have, I believe, been washed up by the tide, it has been a received opinion among the farmers, that they are not natives of this country, but come across the ocean; and observations this year greatly corroborate the idea. Fishermen upon the eastern coast declare that they actually saw them arrive in cloud-like flights; and from the testimony of many, it seems to be an indisputable fact, that they first made their appearance on the eastern coast; and, moreover, that on their first being observed, they lay upon and near the cliffs so thick, and so languid, that they might have been collected into heaps; lying, as it is said, in some places two inches thick. From thence they proceeded into the country, and even at the distance of three or four miles from the coast they were seen in multitudes resembling swarms of bees. About ten days after the appearance of the flies, the young caterpillars were first observed on the under side of the leaves of the turnips, and in seven or eight days more, the entire plants, except the stronger fibres, were eaten up. A border under the hedge was regularly spared until the body of the enclosure was finished; but this done, the border was soon stripped, and the gateway, and even the roads have been seen covered with caterpillars travelling in quest of a fresh supply of turnips; for the grasses, and indeed every plant except the turnip and the charlock, they entirely neglect, and even die at their roots without attempting to feed upon them.

Mr. Marshall remarks, that in the year he wrote, about one-half of the turnips in the county had been destroyed by the voracious animal. He thinks it very probable that the flies had come over from the continent; and calculates that they might be transported from the southern cape of Norway to the coast of Norfolk in ten hours. But from whatever source they were originally derived, the simultaneous appearance of the insect in inland and maritime counties, on recent occasions, sufficiently proves that it has now become established among us as a native.

In 1818, which was a remarkably dry summer, the yellow fly appeared in great numbers, and was succeeded as usual, by the black caterpillar. This pest had been noticed more or less at irregular intervals from the time alluded to in the above quotation; but its ravages do not appear to have been of very formidable extent.

Early in July, 1835, the yellow fly was seen in great abundance upon the young turnips, and being an unusually dry summer, the caterpillars soon appeared, and met with little check in their ravages; so that it might well be called the canker year. Nearly the whole of our turnip-growing districts suffered severely. Myriads of these black caterpillars were incessantly at work, and it was a remarkable though painful sight to watch day after day their destructive operations. The ceaseless and apparently unnatural voracity of these caterpillars, and the total annihilation of the crop effected by such insignificant-looking creatures, could not but recall to mind the plagues of the ancients, the locust the canker-worm, and the palmer-worm, spoken of in the Scriptures. It must be evident to any one who has noticed the habits of this caterpillar, how much its existence and power of doing mischief depends upon a dry season. If we try to gather a turnip leaf, laden with these sleek, but unpleasant-looking creatures, the gentlest attempt to do so immediately dislodges them; indeed the hold they have of the leaf, when they are nearly full-grown, is so very slight, that not only would a heavy shower wash them off immediately, but we should imagine that a brisk wind causing any material agitation of the leaves would have a similar effect. During the year 1835, to which we now particularly allude, and in which we had daily personal experience of the ravages of these *blacks*, or *negroes*, or *niggers* as they are popularly called, the newspapers and periodicals were teeming with the subject; indeed a sort of panic prevailed throughout the agricultural world. At Elton, in Bedfordshire, twenty-four acres of English turnips were quite destroyed, with the exception of two acres that had not been hoed out; and it is on account of this exception that we name this particular instance. What is the reason that the work of destruction went on only on the hoed part of the field; and how are we to account for the fact, that when the owner, in despair at the rapid progress of the caterpillars, "stopped the man from hoeing the two acres that were left," that by so doing he quite unexpectedly saved that two acres, so that it came to a good crop?

The vast numbers of these caterpillars developed in this remarkable season, often caused them to find a scarcity of provisions, so that when they had completely

demolished all the soft parts of the leaves, and while on looking over the field scarcely a vestige of green met the eye, nothing being left but the mere skeletons of leaves, they were obliged to return to that which they at first refused, prolonging their existence for awhile by means of the nerves and fibrous portions of the plant.

The turnip crops during the year were, as we have said, subjected to great and almost universal loss; the failure being felt the most in the counties of Kent, Sussex, Essex, part of Buckinghamshire, Hampshire, and Wiltshire; and so long did the various broods continue their attacks that the produce of a second and even of a third sowing did not escape. In many districts the mischief did not cease till after the September rains. Where turnips were not wholly destroyed by the attacks of the caterpillar, they were rendered pithy, and of little comparative value. So great was the failure of the crop generally, that in some of the counties on the coast, ship-loads of turnips from the continent were contracted for to supply the deficiency.

The black caterpillars generally take the English turnips and do not touch the Swedish turnip; but several instances have been recorded of their doing much mischief also to the latter crop. While of the year 1835 Mr. Manning records that the Swedes *close by the side* of the white turnip were untouched, he also tells us that in the year 1836 he had nearly seventy acres of Swedish turnips, all of which were more or less infested with the black caterpillar, while on the English turnips not one was to be seen. In this case also it was noticed that hoeing the turnips increased the evil, for after that operation they appeared a thousand-fold more numerous. The year 1836 was happily less remarkable for the ravages of the caterpillar than the previous year had been; but Mr. Curtis observes, that he saw the flies coming out of the ground in myriads, in a ploughed field in the neighbourhood of Bristol, where potatoes had apparently been grown; and that a great many hundred acres were destroyed in Norfolk. During the following year (1837) the only notice of them made public, seems to be that near Arundel, in Sussex, where the turnip-fields were in many places completely laid waste. In 1838, Mr. Miles of King's Weston, near Bristol, writes,—

The turnip-crop went on together very well until the 8th of July, when I perceive by my farming-book that the black caterpillar first appeared. Its ravages were extended to both crops indiscriminately; as usual however with me, it attacked the field in patches, making sad havoc with the Swedes, and entirely skipping over four rows of mangold wurzel which had been placed between the Swedes and red-rings by way of experiment—to ascertain whether that plant would escape when surrounded by a crop infected by the caterpillar.

We shall close our present notice of this formidable insect with a description of its appearance in the perfect state, leaving to another occasion some particulars relating to its habits and economy with an account of all the plans we have heard or read of for saving the crops from its destructive ravages.

The saw-flies form an extensive family, which is perhaps more mischievous to plants than any other. There are different species of this family, peculiar to different plants, and in the larva or caterpillar state, they attack trees, bushes, and plants of various kinds. Some of the larger species feed upon the willow, the birch, and the white-thorn; others find their appropriate nourishment in the different members of the fir tribe; many of them luxuriate on our choicest fruit-trees; while many others industriously strip of their leaves the gooseberry, or the currant bushes. One species, very nearly allied to the saw-fly infests rose-trees.

The turnip saw-fly, in its perfect state, is of a bright orange colour, the male considerably smaller and more slender than the female. The head is black, short, and broad, with short club-shaped horns. The body is short, and somewhat cylindrical; broader, and more depressed in the female. The wings are four in number shining, reticulated or netted in their structure, the upper pair being the longest. The insect has six rather short legs. The name of saw-fly is given from the instrument with which the female is furnished for depositing her eggs. This consists of four fine lancets, slightly serrated at the points, and enclosed by two lobes or sheaths. With these she pierces the leaves, and forms a cavity proper for the reception of the eggs.

THE RIGHT OF ALL TO MORAL AND RELIGIOUS EDUCATION.

O FOR the coming of that glorious time
When, prizing knowledge as her noblest wealth
And best protection, this imperial realm,
While she exacts allegiance, shall admit
An obligation, on her part, to *teach*
Them who are bound to serve her and obey;
Binding herself by statute to secure
For *all* the children whom her soil maintains
The rudiments of letters, and inform
The mind with moral and religious truth,
Both understood and practised,—so that none,
However destitute, be left to droop
By timely culture unsustained; or run
Into a wild disorder; or be forced
To drudge through a weary life without the help
Of intellectual implements and tools;
A savage horde among the civilized,
A servile band among the lordly free!
This sacred right, the lisping babe proclaims
To be inherent in him, by Heaven's will,
For the protection of his innocence;
And the rude boy—who having overpast
The sinless age, by conscience is enroll'd
Yet mutinously knits his angry brow,
And lifts his wilful hand to mischief bent,
Or turns the God-like faculty of speech
To impious use—by process indirect
Declares his due, while he makes known his need
—This sacred right is fruitlessly announced,
This universal plea in vain addressed,
To eyes and ears of parents who themselves
Did, in the time of their necessity,
Urge it in vain; and, therefore, like a prayer
That from the humblest floor ascends to heaven,
It mounts to reach the state's paternal ear;
Who, if indeed she own a mother's heart,
And be not most unfeelingly devoid
Of gratitude to Providence, will grant
The unquestionable good—which, England, safe
From interference of external force,
May grant at leisure, without risk incurred,
That what in wisdom for herself she doth,
Others shall ne'er be able to undo.

* * * * *

—The discipline of slavery is unknown
Among us,—hence the more do we require
The discipline of virtue; order else
Cannot subsist; nor confidence, nor peace.
Thus, duties rising out of good possessed,
And prudent caution needful to avert
Impending evil, equally require
That the whole people should be taught and trained:
So shall licentiousness and black resolve
Be rooted out, and virtuous habits take
Their place; and genuine piety descend
Like an inheritance from age to age.—WORDSWORTH.

THERE is nothing in history which is so improving to the reader as those accounts which we meet with of the deaths of eminent persons, and of their behaviour in that dreadful season. I may also add, that there are no parts in history which affect and please the reader in so sensible a manner. The reason I take to be this: there is no other single circumstance in the story of any person, which can possibly be the case of every one who reads it. The general, the statesman, or the philosopher, are perhaps characters which we may never act in; but the dying man is one whom, sooner or later, we shall certainly resemble.—ADDISON.

SEASONAL WILD FLOWERS.

MAY.

May is the very month of mirth!
And if there be a time on earth,
When things below in part may vie
For beauty with the things on high;
As some have thought earth's beauties given
For counterparts of those in heaven;
'Tis in that balmy vernal time,
When nature revels in her prime;
And all is fresh, and fair, and gay,
Resplendent with the smiles of May.

MANT's *British Months.*

ARRIVED at the threshold of the merry month of May, we cannot help expressing our regret at the gradual disappearance of those innocent pastimes, which, in days of greater simplicity of manners, were peculiar to this season. Not often do we see the May-pole on the green, with the village population gathered round it at the close of day, while children are tripping along with the garlands it has been their day's work to collect.

These things have all, or nearly all passed away, for the pressing necessities of a redundant population leave little time or thought for pastime. But if flowers are not brought to our doors, or profusely scattered in our village festivities, we have still the same never-failing profusion inviting us abroad in the spring-tide of the year, and clothing our meadows with a robe of beauty and variety that may well excite more than a mere passing exclamation of delight.

Let us contemplate for a moment the general appearance of the vegetable world at this season with regard to one point, *i.e.*, the *variety* we see displayed in it. It is a very common remark, and one that is generally received among us, that everything in this world was created for some *use*, whether we can discover that use or not. It may indeed be true of every material or object which the Almighty has been pleased to call into existence, that some purpose of utility has been attached to or combined with it; but no one can reflect for a moment on the vast variety and the perfect elegance of the forms of vegetable life, without feeling that the beneficent purpose of the Creator has extended to beauty as well as to utility. If we merely examine the simple wild flowers of our land, and mark their boundless variety of form and colouring, the shades of difference which appear even in plants of the same species, and the more marked characteristics of different families and tribes, how can we imagine that these nice points of distinction, delightful as they are to the eye and fancy of the observer, have any special purpose affecting the well-being of the plants themselves? The botanist is quite aware that the petals of a flower are not absolutely necessary to it, and that the reproduction of the plant can be effected by the stamens and pistils alone. The splendid colours then, which are presented to us in the blossoms of summer, seem intentionally given to produce variety and beauty; the beautiful tints and freckles, and intricacies of pattern, which strike us the more as our acquaintance with flowers increases, are only further developements of the perfections of God, and of his beneficence in providing for the refreshment and delight of his creatures, as well as for the supply of all the necessities to which they are subject.

With this feeling let us mark the May flowers that are opening beneath our feet, and let the variety we observe in them, though we may sometimes feel it to be a difficulty in the way of our getting botanical knowledge, yet serve to raise our thoughts to Him whose mind has invented ten thousand forms and varieties of beauty wherever we turn our eyes, and whose perfect contrivances as it regards the smallest and most insignificant weed, may assure us of his care over those on whom He has bestowed the highest place and dignity in this lower world.

The months of May and June may be reckoned the most prolific in wild flowers, for towards the close of the latter month the hay-harvest commences, and the pastures are shorn of myriads of blossoms, so that a comparative dearth of flowers ensues. As it would be quite impossible to name all the more important plants now in blossom, we shall direct attention to a few of our own especial favourites, leaving our readers to add to the number such additional plants as may abound in their separate localities, or may have become endeared to them by particular associations.

We begin with a modest inconspicuous plant, but one that is so fragrant, and that preserves, and even increases its fragrance so much in a dried state, that it only requires to be known, to be generally appreciated. This is the Sweet Woodruff (*Asperula odorata*), which grows wild in dry mountainous woods, and is also occasionally admitted into gardens, where its creeping roots spread and increase to a considerable extent. The leaves of this plant are bright green, lanceolate, and grow eight in a whorl round the stem. The regularity with which they form this whorl, likens them to the rowels of a spur, therefore the plant was anciently called *wood-rowel.* Small flowers of a pure white appear in May, and are fragrant chiefly at night. These flowers are very numerous, and appear in panicles, generally three together. The fruit is rough, with ascending bristles. While drying, and for a long period afterwards, the whole plant has a delightful scent, which has been compared to new-mown hay, to bitter almonds, and to heliotrope. This scent is peculiarly agreeable for perfuming clothes, &c., and it is said to be occasionally used in flavouring wine. The edges of the leaves stick to the hands and garments in a manner almost peculiar to the natural order to which it belongs, and which we shall notice presently. The sweet woodruff is eaten by cattle, sheep, and goats, and is said to increase the quantity of milk they yield. Another kind of woodruff must here be named, because it is very likely to be mistaken for the former, though it blossoms rather later. It is the Small Woodruff or Squinancy-wort (*Asperula cynanchica*). This species is perennial, whereas the sweet woodruff is an annual plant. The leaves are smooth, four in a whorl, but the upper ones are very unequal. This plant is also fragrant though in a less degree. The flowers are white or blush-coloured, growing in tufts at the end of the stalks. The unmeaning name of squinancy-wort was given because some ancient herbalist recommended the plant to be used outwardly, as well as inwardly, for the cure of the squinancy or quinsey. The botanical name *Asperula* is derived from *asper* rough, in allusion to the roughness of the leaves.

Some near relations of the Woodruff make their appearance about this time, though in backward seasons few of them vouchsafe to present a blossom until quite late in the month, or at the commencement of June. These are the different species of Bedstraw (*Galium*), which in general growth and appearance much resemble the woodruff, and belong to the same tribe, the Madder tribe. The well-known runner called *Cleavers*, or Goosegrass (*Galium aparine*), which *cleaves* with so much pertinacity to the clothes of the passer-by, affords a very familiar example, and the Cross-wort Bedstraw (*Galium cruciatum*), with its feeble branches and small yellow flowers, begins to show itself by hedges and way-sides The circumstance which gives to Cleavers or Goosegrass the peculiarity of clinging to our garments is, that the whole surface is covered with myriads of fine hairs, which are curved into hooks and enable the plant to climb as it does, and take such fast hold on the weeds, or bushes, among which it grows. A handful of the dry stems pressed into a colander are said to answer all the purposes of a fine sieve, so effectually do all these minute hairs take up the particles from the liquid that may be poured over them. The same sort of clothing of hairs, though in a less degree, gives to the woodruff and to the different species of Galium their roughness of surface.

It will be observed that the leaves of all these plants grow just in the same manner as in sweet woodruff, that is, in a whorl of about four, or six, or eight, round the stem like the rowels of a spur, or the spokes of a wheel. This arrangement of the leaves will be a help to our young readers in searching for plants of the Madder tribe.

But there is another tribe which now begins to attract notice, and which contains many common and very pretty little plants. It contains the Cranesbill and the Storksbill families, and is best known as the Geranium tribe. The most attractive species in the Cranesbill family is, perhaps, that very beautiful rose-coloured flower called Herb Robert (*Geranium Robertianum*), now to be seen in blossom. The stems of this plant, as well as the leaves, are tinged with red, while the rosy petals are marked with white veins. It is a small plant growing in waste places, among bushes, stones, &c. It springs up annually, and remains in flower from May to October.

There is another species of Geranium, more showy, and indeed a very handsome plant, with large blue flowers marked with white veins, to which, perhaps, we ought to give the first place in noticing this family. This is the Meadow Cranesbill (*Geranium pratense*), but beautiful as it is, it cannot boast so rich a colouring as Herb Robert, nor does it better repay a close inspection; therefore we put our favourite first, which is also the best known of the species. The meadow cranesbill does not blossom till June, but there are of this family, besides Herb Robert, the following species now in bloom. The common Dove's-foot Cranesbill (*Geranium molle*), a soft downy plant with small rose-coloured flowers, growing very commonly both in waste, and in cultivated ground; the Jagged-leaved Cranesbill (*Geranium dissectum*), which may be known from the last by the shape of the leaves; and the Dusky, and the Shining Cranesbill, which are both uncommon. On the sandy coasts of the south of England, the Sea Storksbill may also now be seen. There will be little difficulty in recognising any member of these families if we meet with it when the seed vessels are formed, for they greatly resemble the bills of the birds whose names they bear. This structure may be observed also in our cultivated geraniums, which, though they bear very different shaped flowers, are nevertheless nearly related to the humble dwellers in our lanes and hedges. The beautiful geraniums of our green-houses are nearly all natives of the Cape of Good Hope, and if we named them according to strict botanical definitions, we should call them Pelargoniums. But the usual name answers every purpose, and serves to remind us of the connection, just alluded to, between them and the little regular cranesbill flowers that differ so much in the shape of the petals.

Several of the genera belonging to the Borage tribe now give us some of their earlier species. Among these we consider the common Comfrey (*Symphytum officinale*) by no means despicable. Indeed, it has been a favourite plant of ours from early years, partly, perhaps, because it was very difficult of attainment. This large rough-leaved plant grows very commonly in ditches, or on the margin of rivers, so that while it is well-known to most persons, it is not frequently gathered. The hairy stems are sometimes three feet high; the flowers are yellowish-white, tubular, and furnished with scales at the mouth. There is a purple variety that is, perhaps, the handsomer of the two. The roots of Comfrey are mucilaginous, and have been used for coughs; the young shoots are sometimes eaten as asparagus, but they form a very poor substitute.

Perhaps most of us that have spent the days of our youth in the country, have delighted in gathering Wild Hyacinths (*Hyacinthus non Scriptus*) from the woods and sheltered spots where they grow. These flowers now put forth their fragrant bells abundantly, and enliven the thickets with their cheerful blue colour. They resemble too much the hyacinths of our gardens to need description here. More rarely we meet with the curious Starch Hyacinth which grows in grassy fields, or among ruins in England, but is not considered truly wild. In this plant the calyx and corolla are completely glued together. The flowers are of a darker blue than those of the wild hyacinth or blue-bell. Thr hyacinths belong to the Asphodel tribe noticed in one last.

Nothing can be more common than the large purple Mallow (*Malva sylvestris*). It is a way-side weed that seems to defy the dust and mire with which it is assailed, and to flourish where many a less hardy plant would immediately pine away and decay. Cottagers' children know the plant well; for the striped blossoms are succeeded by a small green fruit which they call "cheeses," and which are by no means unpleasant to the taste. The mallow has an erect branching stem, and roundish leaves, divided into about five shallow lobes. The flowers spring singly from the bosom of the leaves, and consist of five large petals, which are at first curiously twisted together, but when fully blown, spread open very widely. The stamens consist of a hollow column bearing a great number of anthers at its upper end. This column is in fact formed by the filaments growing together. The pistil has somewhat of the same conformation. But these must be examined with the aid of a botanical work in order to appreciate the general arrangement which is characteristic of the Mallow tribe. But it is the ripe fruit or cheese which presents so beautiful a structure as to cause us thus to linger over this very common plant. Dr. Lindley compares the parts when cut through with a knife to a vegetable star, and says that the kaleidoscope itself can produce nothing prettier except in colour. "Only compare a vegetable cheese," he says, "with all that is exquisite in marking, or beautiful in arrangement in the works of man, and how poor and contemptible do the latter appear! Not only, when seeing it with the naked eye, are we struck with admiration at the wondrous perfection and skill with which so obscure a point in creation is constructed; but, using our microscope, surprise is converted into amazement, when we behold fresh beauties constantly revealed as the magnifying power is increased, till at last, when the latter reaches its limit, we find ourselves still regarding a lovely prospect, the horizon of which recedes as we advance. Nor is it alone externally that this inimitable beauty is to be discovered; cut the cheese across, and every slice brings to view cells, and partitions, and seeds, and embryos, arranged with an unvarying regularity, which would be past belief, did we not know, from experience, how far beyond all that the mind can conceive, is the symmetry with which the works of nature are constructed."

Numerous interesting plants now make their appearance:—far too numerous for our notice; yet we must briefly mention a few of the prettiest. There is the common Fumitory, with tubular rose-coloured flowers tipped with black, growing in fields, and in loose soil generally; there are the different kinds of Vetch and Clover, some of them extremely beautiful; the delicate Cuckoo flower, profusely adorning our meadows, and softening the prevailing brilliancy of Marsh marigold, and buttercups; the showy Iris springing up in marshy places; the pale Honeysuckle throwing its fragrance around from copse, or hedge-row; and more conspicuous than all, more characteristic than all,—there is the Whitethorn, the Hawthorn, or *May*, full of buds and snowy flowers pouring out a delicious perfume, and looking upon us, as it were, with its thousand meek eyes, to invite our celebration of "the merry month of May."

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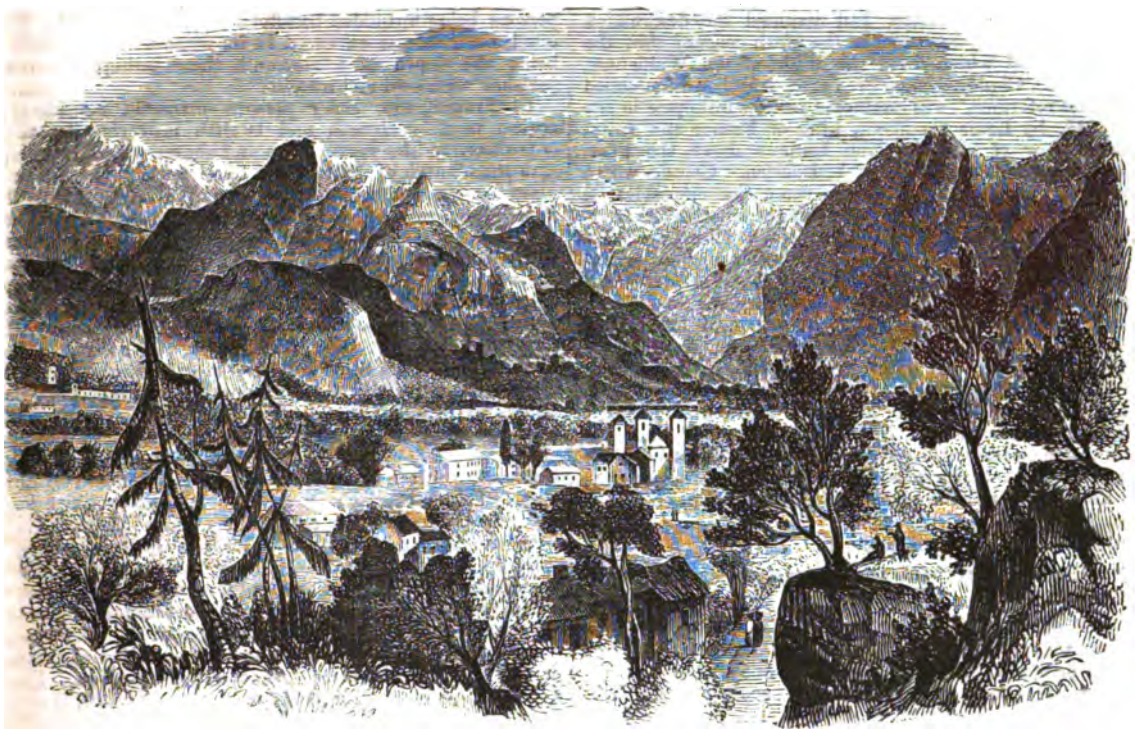
SOME ACCOUNT OF THE WALDENSES.



VALLEY OF LUZERN.

I.

THE EVENTFUL HISTORY OF THE WALDENSES, FROM THE NINTH CENTURY TO THE PRESENT TIME.

Avenge, O Lord, thy slaughter'd saints, whose bones
Lie scatter'd on the Alpine mountains cold;
Even them who kept thy truth so pure of old,
When all our fathers worshipp'd stocks and stones,
Forget not: in thy book record their groans
Who were thy sheep, and in their ancient fold
Slain by the bloody Piemontese that roll'd
Mother with infant down the rocks. Their moans
The vales redoubled to the hills, and they
To heaven. Their martyr'd blood and ashes sow
O'er all the Italian fields, where still doth sway
The triple Tyrant; that from these may grow
A hundred-fold, who, having learn'd thy way,
Early may fly the Babylonian woe.—MILTON.

AMONG the denominations into which the Christian world is divided, few perhaps are more remarkable than the WALDENSES, whether we regard the smallness of their numbers, the district which they inhabit, their relation to surrounding countries, the persecutions which they have undergone, the sympathy which has been shewn to them by England, or the amiability of their character. Hemmed in on the one side by the French, and on the other by Italians, they maintain a character and a form of religion distinct from both; and what is more remarkable, they appear to have done so more or less for the long period of nine hundred years. We shall endeavour on the present occasion to present a rapid sketch of their history, from the ninth century to the present time; and in another Supplement we shall describe the beautiful valleys which they inhabit, and the manners and customs of the people.

In order that the reader may clearly understand the historical details, it will be necessary to explain the acceptation now given to the term "Waldensian Valleys." If we inspect a map of Northern Italy, we find that a branch of the Alps separates Italy from France, including the mountains of Cenis, Genèvra, and Viso. From Mount Cenis to Mount Viso is a distance, in a straight line, of, probably, forty miles; and on the banks of the streams which have their source in these mountains, and flow eastward, dwell the Waldenses. The district is divided into *valleys*, such as the "Valley of Perouse," the "Valley of Pragelas," the "Valley of St. Martin," each being named according to the stream which flows through it. All the Waldensian towns are within fifteen or twenty miles of the mountain summits. The whole district lies but a short distance south-westward of Turin, the capital of the King of Sardinia's dominions, and forms part of the Piedmontese territory of that monarch. Our frontispiece, representing the Valley of Luzern, with the Alps in the distance, will serve to convey an idea of the general characteristics of the district.

The origin and meaning of the word *Waldenses* have been for centuries the subject of dispute. Some have thought that the term was first Vaudenses, from the neighbouring canton of Vaud, in Switzerland. Others trace the name to one Valdo, who advocated Protestant principles in Italy in the ninth century. A third party derive the name from Peter Waldo, a rich merchant of Lyons, who gave a great impulse to religious freedom in the eleventh century. The opinion, however, which gains most support, is that the name is derived from the Latin name for a valley, viz., *vallis;* from which are derived the French *vallée*, the Spanish *valle*, the Italian *valdesi*, the low Dutch *valleye*, the Provençal *vaux*, *vaudois;* all of which imply either "valleys" or inhabitants of valleys. Evidence has been furnished that the small protestant sects which have at different times inhabited the mountain valleys, both of the Pyrenees and of the Alps, have been

called by a name analogous to Waldenses. Supposing this, however, to be correct, it is still not a little remarkable that a Waldo should have been closely connected with the Waldenses, unless one name was derived from the other.

We may commence our narrative by stating that the inhabitants of the Piedmontese valleys early distinguished themselves by disapproving of the doctrines of the Church of Rome. Mountaineers are always slow to fall into the corruptions which disfigure great towns and cities; and it has been supposed that the inhabitants of these valleys retained, throughout the period emphatically known as the "dark ages," much of the simplicity and purity of primitive Christianity. The bishops of the North-Italian provinces frequently dissented from the doctrines and practice of the Bishops of Rome, both before and after the latter had assumed the designation of Pope. It was, however, in the ninth century that the events occurred which fixed the origin of the Waldenses, as a people. Claude, bishop of Turin, who had been called the "first reformer," was promoted to that bishopric in the year 817, by Louis the Meek, king of France and Italy, with a view of elevating the Italians above the gross superstitions into which they had fallen. Claude was a pious and a good man. He wrote three Commentaries on the Book of Genesis, another on Exodus, another on Leviticus, and another on the Gospel of St. Matthew. He preached against images, relics, and pilgrimages, and endeavoured to make the people understand the Bible doctrines. This, as may be supposed from the general analogy of history, drew towards him the opposition of the priesthood; lengthened controversies ensued, but the state of Italy at the time was unfavourable to open persecution. He descended peaceably to his grave, but the effects of his ministry did not die with him; for there are scattered notices which shew, that though the history of the Waldenses, or mountain villagers, cannot clearly be traced, they still retained the principles which Claude had awakened, and kept aloof from the corruptions of the Italian cities.

Section 1.

First Persecution and Dispersion of the Waldenses.

The Waldenses were, however, not allowed to remain at peace in their valleys. When they had increased in number and prosperity, it became rumoured in the neighbouring ecclesiastical states, that a numerous people occupied the southern valleys of the Alps, whose faith and practice differed from those of the Romish church; who paid no tithes, offered no mass, worshipped no saints, nor performed the other rites of their neighbours. The Archbishops of Turin, Milan, and other cities, heard this report with anxiety; and finding it to be correct, and that the Waldenses would not yield to the court of Rome, they demanded the aid of the civil power; but the princes who at that time governed the valleys, and who had beheld with pleasure the simple manners of the Waldenses, their uprightness and integrity, and their fidelity in the discharge of all the duties of civil and social life, at first refused to disturb them. The clamour and fierceness of the agents of persecution, however, eventually worked their object; and the Waldenses, on giving a positive refusal to conform to the Church of Rome, were for the most part driven from their home and country; seeking for refuge in France, in Switzerland, in Germany, and even in England.

Traces are here and there to be found of the poor wanderers or their descendants in different countries. About the year 1140 a letter was written by Evervinus, of Stainfield, in the diocese of Cologne in Germany, to the celebrated St. Bernard, concerning certain heretics in his neighbourhood. He describes them as professing doctrines wholly at variance with the creed of Rome; and indeed they bear a very close resemblance to those of Luther, which were promulgated three or four centuries afterwards. These men were called *Cathari* (synonymous with the modern term *Puritans*); but they are supposed to have been a remnant of the expatriated Waldenses.

A few years after this, some of them found their way into England. Henry, in his *History of Great Britain*, gives the following account of them. "A company, consisting of about thirty men and women, who spoke the German language, appeared in England in 1159, and soon attracted the attention of government by the singularity of their religious practices and opinions; it is indeed very difficult to discover with certainty what their opinions were, because they are recorded only by our monkish historians, who speak of them with much asperity. They were apprehended, and brought before a council of the clergy at Oxford. Being interrogated about their religion, their teacher, named Gerard, a man of learning, answered in their name that they were Christians, and believed the doctrines of the Apostles. Upon a more particular inquiry, it was found that they denied several of the received doctrines of the church, such as purgatory, prayers for the dead, and the invocation of saints; and refusing to abandon these heresies, as they were called, they were delivered to the secular powers to be punished. The king, Henry II., commanded them to be branded with a red-hot iron in the forehead, to be whipped through the streets of Oxford, and, stripped half naked, to be turned into the open fields; all persons being forbidden to afford them any shelter. This cruel sentence was executed in its utmost rigour; and, it being the depth of winter, all these unhappy persons perished with cold and hunger."

In France, too, many persons attracted considerable notice, in the eleventh and twelfth centuries, by their opposition to the corruptions and abuses which had crept into the Church of Rome; and these appear to have been more or less connected with the Waldenses. But the Waldenses, properly so called, continued to exist, and even to increase in number and influence, throughout the eleventh and two following centuries, notwithstanding the persecutions to which they were subjected. The dissenting tenets spread to the cities of Northern Italy, and the dissenters or protestants themselves were often known in Italy by the name of *Paterines*. In Milan there was a street called Pataria, where it is supposed they met for divine worship. At Modena they assembled at some water-mills. They had houses at Ferrara, Brescia, Viterbo, Verona, Vicenza, Rimini, Romandiola, and other places. In 1259 the protestant church at Alba numbered five hundred members; that at Concorezzo fifteen hundred; and that at Baguolo two hundred. The houses where they met seem to have been hired by the people, and tenanted by one of them. There were several in each city, and each was distinguished by a mark known to themselves. They had bishops or elders, pastors and teachers, deacons, and messengers; the latter or whom were men employed in travelling to administer to the relief and comfort of the poor and persecuted. In times of persecution they met only in small companies of twenty or thirty, for fear of attracting too much attention. From a comparison of the statements of various historians, it seems pretty certain that these Waldenses, Paterines, or Protestants, were decent in their deportment, modest in their dress and discourse, and, for the age, of high moral character. They applied themselves rather to labour than to commerce; and indeed their elders and other officers were, like themselves, artisans, and laboured for their daily bread.

In Northern Italy the protestants were numerous in the towns as well as in the Piedmontese valleys; but the time gradually approached when they were driven from all their homes, except in the mountain valleys, where we find them to this day. The circumstance which seems to have brought ecclesiastical persecution more directly on them, appears to have been the extraordinary success which attended the preaching of Peter Waldo, who, whether we call him one or the Albigenses, or of the Waldenses, or simply a religious reformer, exerted great influence on the fate of these bodies generally.

Section 2.

The Preaching of Waldo and its Effects on the Waldenses.

Peter Waldo was an opulent citizen of Lyons, in which city he lived and flourished in the latter half of the twelfth century. Lyons had been distinguished more than once for the support which its inhabitants had given to religious reformers; but at the time when Waldo lived, the grossest superstition for the most part prevailed. It is said that one evening after supper, whilst Waldo was conversing with a party of his friends, one of the company fell down dead on the floor, to the consternation of all that were present. Such a lesson on the uncertainty of human life, appears to have forcibly arrested the attention of Waldo. His thoughts had probably already been directed to the depravity of the times in which he lived; and this incident was calculated to affect him powerfully. A total change was wrought in his habits and mode of life. He abandoned his mercantile pursuits, distributed his wealth to the poor as occasion required; and laboured to engage their attention to the truths of

Scripture. This latter object he could not attain so long as the Bible remained sealed up in a language unknown to the common people; and he therefore either translated, or employed others to translate, the four Gospels into French, and taught the contents to the Lyonnese.

Waldo then entered upon a path which was certain to bring down persecution upon him. He drew comparisons between the Scripture precepts, and the doctrines and practices of the Romish church, and fearlessly and openly attacked the latter. The Archbishop of Lyons became indignant at these proceedings; and after vainly endeavouring to win Waldo from his opinions, ordered him to be apprehended. But the number and affection of Waldo's friends; the respectability and influence of his connexions, many of whom were men of rank; the universal regard in which he was held for probity; and the conviction that his presence was highly necessary among the people whom he had by this time gathered into a community or church—all operated so strongly in his favour, that he lived concealed at Lyons during the space of three years. But when the Pope heard of these proceedings, he ordered the Archbishop to proceed against Waldo with the utmost severity; this was done, and he was driven from Lyons to Dauphiny, from thence to Picardy, and thence to Germany. Wherever he went he continued to preach and to make converts; these converts underwent various troubles; some of them concealing their opinions, others taking refuge with the Waldenses of Piedmont, to whom they carried the French translation of the four Gospels. Waldo himself died in Bohemia in 1179; but his efforts seem to have drawn the attention of the papal authorities more forcibly towards the reforming spirit which pervaded Northern Italy and Southern France. The French Waldenses, who were more generally spoken of as Albigenses, from the district of France (Albigeois) which they chiefly inhabited, underwent, in the following century, a persecution, at the details of which the heart sickens; they were all but exterminated; for the sovereign of France entered fully into the plans of the Pope respecting these unfortunates*.

The Piedmontese Waldenses, however, were more fortunate in their political relations. The valleys, after changing hands several times, had become part of the dominions of the Dukes of Savoy, who were mild and tolerant governors. Continually receiving the most favourable reports of the Waldenses, as a people simple in their manners, free from deceit and malice, upright in their dealings, loyal to their governors, and ever ready to yield them a cheerful obedience in everything but the concerns of religion, the Dukes turned a deaf ear to the repeated solicitations of the priesthood, and for a very long period peremptorily refused to disturb them. An attempt was made about the middle of the twelfth century to introduce the Inquisition into Piedmont, and other parts of Italy; but everywhere the people met the proposal with such determined resistance, and the princes of Northern Italy entered so coldly into the project, that it failed of being carried into execution. In effect, from the middle of the twelfth to the end of the fourteenth centuries, the Waldenses of Piedmont were able to maintain their ground against all attacks from the Romish party; although in France, in Spain, in Germany, and in the Netherlands, much persecution was experienced.

Section 3.

Violent Attack of the Romish Party on the Piedmontese Waldenses.

The year 1400 opens a period when the Waldenses of the Alpine valleys, those who had formed a kind of centre for religious reformers, began to suffer in sad earnest for their firm adherence to their opinions. In that year, a violent outrage was committed upon the Waldenses who inhabited the valley of Pragelas, by the Romish party resident in that neighbourhood. The attack, which was of the most furious kind, was made towards the end of the month of December, when the mountains were covered with snow, and thereby rendered difficult of access. The peaceable inhabitants of the valleys were wholly unapprised that such an attempt was meditated until their persecutors were in the immediate vicinity of their dwellings. In this pitiable plight they had recourse to the only alternative which remained for saving their lives; they fled to one of the highest mountains of the Alps, with their wives and children, the unhappy mothers carrying the cradle in one hand, and with the other leading such of their offspring as were able to walk. Their inhuman invaders pursued them until night came on, and slew great numbers before they could reach the mountains; and those that escaped were reserved for a worse fate. Overtaken by night, they wandered about the mountains covered with snow, destitute of the means of shelter, or of supporting themselves under it; benumbed with cold, they became a prey to the severity of the climate; and when the night had passed away, there were found in the cradles or lying upon the snow, more than eighty infants, deprived of life; many of the mothers also lying dead by their sides, and others just on the point of expiring. During the night, their enemies were busily employed in plundering the houses of everything that was valuable.

This seems to have been the first general attack that was made by the Roman Catholics on the Piedmontese Waldenses; for though the former had repeatedly availed themselves of the edicts of Emperors, the bulls of the Popes, and the promptitude of the Inquisition, to disturb the Waldenses during the past three centuries, yet such had been the protection afforded to them by the Dukes of Savoy, that the rage of their adversaries was happily restricted to the occasional apprehension of a few solitary persons. But this attack was so unforeseen and so terrible, that it made a lasting impression on the minds of the Waldenses. For more than a century afterwards, they were wont to speak of it as of a dreadful scene which was still present to their view.

A period of about eighty years seems to have elapsed, during which, the Waldenses were permitted to exercise their religious duties in peace; but meanwhile their brethren in the south of France endured a terrible persecution, by order of the Pope, and at length the storm reached the peaceful valleys of Piedmont. The Pope, Innocent the Eighth, issued an edict appointing Albert de Capitaneis his commissioner, or nuncio, in the Duke of Savoy's dominions, for the purpose either of converting, or exterminating, by the aid of inquisitors, magistrates, and troops, the Waldenses. In the year 1488, Albert advanced with eighteen thousand men against the valleys of Piedmont. The invading army was also joined by many of the Piedmontese Catholics, who hastened to it from all parts, allured by the specious promise of obtaining the remission of their sins, and the hope of sharing in the plunder.

The Waldenses, roused by these events, armed themselves with wooden targets and cross-bows, and availing themselves of the advantages of their situation, everywhere defended the passes of their mountains. They sent a deputation to wait upon their sovereign, the Duke of Savoy, to explain to him that this was not a resistance to his lawful authority, but to an attack emanating unlawfully from another quarter. The Duke received them kindly, and declared his determination to protect them in the undisturbed possession of those privileges which had been allowed to their ancestors for so many ages. But he appears to have wanted the necessary power to carry his wishes into execution to the full extent; for the Waldenses were repeatedly harassed by the inquisitors and other Romish agents for many years; but the formidable attack meditated by Albert was frustrated, partly by the expressed opinion of the Duke, and partly, by the resolute demeanour of the mountaineers themselves.

The effects of these occurrences was shewn in the change made in the mode of performing public worship. Fearful of attracting the attention of inquisitors, they, for many years, abandoned their public church-meetings, and assembled for worship, wholly in private. In the year 1532, however, they appear to have been sensibly struck with this departure from their ancient usages: for, upon reviewing the existing state of matters amongst them, they came to a determination no longer to conceal their meetings for worship, but resolved that their elders should preach the Gospel openly and boldly, unawed by the apprehension of danger from their adversaries. The Duke of Savoy then reigning was less friendly to the Waldenses than his predecessors; he was instigated by the Archbishop and Inquisitor of Turin, to resent this re-assumption of public worship among his Waldensian subjects. He despatched one of his officers at the head of five hundred men, horse and foot, who, before the inhabitants were apprised of their intention, entered the valleys, pillaging, plundering, and laying waste whatever came in their way. The unsuspecting people were, at the time the army approached, employed in the cultivation of their lands; but recovering from the panic into which they

* The reader will find several historical notices of the Albigenses and their persecutions in the *Saturday Magazine*, Vols. X., XI., and XII

had been thrown by this unexpected attack, they took courage, and every man quitting his plough and agricultural pursuits, flew to the passes of the mountains, which they secured; and then arming themselves with slings and stones, encountered their invaders so manfully as to compel them to flee, leaving their booty behind, and many of their men dead upon the field.

The Duke was now convinced that an attempt to interfere with them by military means was not likely to increase his strength or influence; and he declined to send any more troops against them; but allowed the inquisitors to entrap them a few at a time, as they could.

Section 4.

Rigorous Treatment of the Waldenses in the Sixteenth Century.

During the first half of the sixteenth century, when the doctrines of Luther and Calvin gave constant uneasiness to the papal court, the Waldenses who were settled in France, and in the southern parts of Italy, suffered repeated and terrible persecutions, partly at the hands of the monarchs in whose territories they resided, but principally through the machinations of the Inquisition. Confining our attention, however, to the Waldenses of the Piedmontese valleys, we may remark that Francis the First, king of France, about the middle of the sixteenth century, obtained possession of the whole country of Piedmont by conquest, and regulated its affairs by means of a parliament at Turin. The pontifical chair was then filled by Paul the Third, who urged the parliament so sedulously to proceed against the Waldenses, that it yielded, and commenced a series of persecutions, exceeding in severity anything that the Piedmontese Waldenses had yet experienced. They presented an address to the king, humbly supplicating that they might be indulged with the same privileges under his government, that they and their forefathers had so long enjoyed under the House of Savoy. But Francis disregarded their prayer, and commanded that they should be regulated in the concerns of religion by the laws of the Romish church, or be punished as heretics. The parliament then commanded them to dismiss their pastors on pain of death; and to receive in their stead priests belonging to the Romish church, who were to conduct their worship and perform masses. The Waldenses replied, in the same spirit which had for centuries actuated them, "that so far as regarded their religious worship, they could obey no commands which interfered with the laws of God, to whom they rather chose to be obedient, in everything that concerned his service, than to follow the fancies and inclinations of men."

The state of politics at that period prevented the persecuted band from experiencing any great troubles for a few years; and in 1559, Piedmont again reverted to the House of Savoy. Then ensued a repetition of what had so often occurred before; viz. solicitations on the part of the priests that the Duke would subdue his heretical subjects; and petitions on the part of these latter that they might be permitted to enjoy the privileges which they had so long, through difficulty and danger, retained. They made a bold avowal of their principles, as these respected the Christian faith, their readiness to yield obedience to their civil rulers, in everything that did not infringe upon the rights of conscience; they expressed their anxious wish to live peaceably with their neighbours, affirming that though often provoked to it, they had done violence to no man; they implored his Highness to consider that their religious profession was not a thing of yesterday, but had existed for centuries; they reminded him of the grievous persecutions that for many ages past had been carried on against their brethren, and which had been so far from destroying the sect, that their numbers were increasing daily—a proof, as they adduced, that their faith was founded on a rock which was not to be removed by violence.

The petition of the Waldenses was seconded by the Duchess of Savoy, a mild and kindly-disposed lady; and the Duke granted his protection, with some hard conditions. Circumstances, however, afterwards occurred, which led to an army being sent against the Waldenses, who now assumed a more warlike attitude than they had ever yet done. For three or four years there was much skirmishing, burning of houses, sacking of villages, &c.; but not such terrible scenes as after years witnessed. At one time an utter proscription was pronounced against them by the Romish party; but the remonstrances of some of the Protestant princes of Germany were so urgent, as to cause a cessation of the persecution for some years. At the time of the massacre of St. Bartholomew too, in 1572, and again in 1574, attempts were made to instigate the Duke against his Protestant subjects; but happily without effect. We may close the details of this century, by stating that a Duke of Savoy, who succeeded to the dominions in 1580, made this remarkably favourable reply to an address from his Waldensian subjects, in which they assured his Highness of their loyalty and fidelity to his government, and supplicated a continuance of his favour and protection. "Only be faithful to me, and I shall not fail to be a good prince, nay a father to you. And as to your liberty of conscience, and the free exercise of your religion, I shall be so far from introducing any innovations into those liberties which you have enjoyed to the present time, that if any offer to molest you, have your recourse to myself, and I shall effectually relieve and protect you."

The seventeenth century was a memorable one for the Waldenses, both in respect of the harassing persecutions which they endured, and the sympathy showed towards them by England and other Protestant countries. In the very first year of the century, more than five hundred families were driven from the Valley of Saluzzo, which had been recently added to the Duke's Piedmontese dominions, at the instigation of the papal court. Some of these crossed the Alps into Dauphiny; others went to Geneva and its neighbourhood; while many sought refuge among their friends in the neighbouring valleys. The exiles signed a declaration respecting this calamity, from which the following extract will show the spirit whereby they were actuated. "To the end that all men may know that it is not for any crime or misdemeanour, perpetrated against the person of our prince, or for rebellion, or opposition to his edicts, or for murder, or theft, that we are thus persecuted and spoiled of our goods; WE PROTEST AND DECLARE, that the doctrine maintained by the reformed churches of France, Switzerland, Germany, Geneva, England, Scotland, Denmark, Sweden, Poland, and other kingdoms, is the only Christian doctrine approved of God, and which brings salvation to men. We are, therefore, determined to adhere to it to the end of our lives, and at the risk of everything that is dear to us. If any presume to think us in an error, we desire to be shown wherein, promising to abjure and turn from it, and to follow the better way that shall be shown us; for we have nothing more at heart than, with a good conscience, to worship God agreeably to his own will, and attain the salvation of our souls. But as attempts have been made by mere force to compel us to forsake the way of salvation, and to follow after the erroneous doctrines and superstitions invented by men, we choose to lose our houses and properties, nay, and our very lives also, rather than comply."

We shall pass over the minor events of the first half of this century, and proceed to that terrible infliction which excited the attention of all Protestant Europe to the valleys of Piedmont. The miseries of war and violence were never perhaps experienced by a people more fully than by the Waldenses in the year 1655. On the 25th of January in that year a manifesto was issued by Andrew Gastaldo, who had been appointed by the then reigning Duke of Savoy his agent for exterminating the Waldensian heresy. This manifesto commanded every head of a family among the Waldenses, together with his wife and children, to abandon their homes within three days after the date of the order, on pain of death and confiscation of houses and goods; unless they immediately embraced the Romish faith; and the places to which they were to transport themselves were to be under the Catholic authorities, who were to be permitted to proselytize them.

The consternation with which such an order was received, at a time when the surrounding country was buried in the snows of winter, may be faintly conceived. The poor villagers petitioned the Governor, representing to him the unreasonableness and cruelty of this command; they stated the absolute impossibility of so many souls finding subsistence in the places to which they were ordered to transport themselves, the countries scarcely affording adequate supply for their present inhabitants; to which they added, that this command was expressly contrary to all their rights as the peaceable subjects of his Highness, and the concession which had been uniformly granted them, of maintaining without molestation their religious profession.

The Governor refused to listen to them, and also refused to allow them to address a petition to the Duke; and as

they were resolved not to abandon their faith, they accepted the dreadful alternative of abandoning their homes. At this inclement season they quitted their peaceful dwellings in the valleys, with their wives and children, aged parents, and helpless infants, to seek a home in a strange land. No sooner were the houses abandoned, than they were plundered by the soldiers to whom the execution of the order had been entrusted; they not only razed the habitations to the ground, but even cut down the trees, and rendered the district a desolate wilderness. In some of the valleys the troops came upon the inhabitants so suddenly that the latter had not time to accept even the alternative offered by the Governor's order, and scenes of unutterable atrocity ensued. It appears that the soldiers were left to follow their own unshackled licence, and that the commander was in some degree ashamed of the sickening barbarities perpetrated; for he thought it necessary to draw up a declaration, stating that it was not by his wish that measures were carried to such extreme lengths.

Section 5.

Sympathy of England with the suffering Waldenses.

Whether or not the persecutions were fully sanctioned by the officer, the Governor, or the Duke, it is certain that the Protestant countries of Europe viewed with horror and amazement the scene which had occurred, as accounts gradually extended from one country to another. Oliver Cromwell was "Protector" of England at the time of these occurrences; and whatever may be the general current of opinion respecting his private character, or the means whereby he attained to supreme power, there can be no doubt that he exerted this power in the right direction as respects the Waldenses. As soon as the news of the Waldensian massacre reached England, he instantly took measures to rouse the attention of the Protestant States of Europe to the subject. The great Milton was his secretary at the time, and wrote the noble sonnet, which stands at the head of the present article. But Milton was able to effect much more. It devolved upon him, as foreign secretary to Cromwell, to write to the various Protestant States of Europe; and his letters on the occasion have been deemed models of the expression of earnest feeling. One of these was written to Louis the Fourteenth, who, though a Roman Catholic, was supposed to be unlikely to support the measures of the Duke of Savoy; another was written to the Duke himself; a third to the King of Sweden; a fourth to the King of Denmark; a fifth to the States-General of Holland; a sixth to the Swiss Cantons; a seventh to the Prince of Transylvania; and an eighth to the Republic of Geneva. Mr. Jones, in his *History of the Waldenses*, has given the whole of these letters at full; but our space will not allow us to do more than give a portion of the one addressed to the Duke.

"We have received letters from several places near your dominions, informing us, that the subjects of your royal Highness, professing the reformed religion, have of late by your express order and command been required, under pain of death and confiscation of their effects, to abandon their houses, possessions, and dwellings, within three days after the publication of that order, unless they would pledge themselves to relinquish their religious profession, and become Catholics within twenty days. And that when, with all becoming humility, they addressed themselves to your royal Highness, petitioning for a revocation of that order, and a reception to former favour, with a continuance of such liberties as were granted them by your most serene predecessor, a part of your army fell upon them, most cruelly massacred many, imprisoned others, banishing the rest into desert places and mountains covered with snow, where some hundreds of families are reduced to such extremity, that it is to be feared they will all miserably perish in a short time with hunger and cold. When intelligence was first brought to us, that a calamity so awful had befallen those most miserable people, it was impossible for us not to feel the deepest sorrow and compassion. For, as we are, not only by the ties of humanity, but also by religious fellowship, and fraternal relation, united to them, we conceived we could neither satisfy our own minds nor discharge our duty towards God, nor the obligations of brotherly kindness and charity, as professors of the same faith, if, while deeply sympathizing with our afflicted brethren, we should fail to use every endeavour that was within our reach, to succour them under so many unexpected miseries."

The tenor of all the letters was to induce the Courts of Europe to interfere for the relief of the suffering Waldenses, by using what power and influence they might possess with the Duke of Savoy. But this was not all. Cromwell, on the very day that he heard of the disasters of Piedmont, subscribed the sum of 2000*l.* as the commencement of a fund for the sufferers. He ordered that collections should be made in all the churches and chapels of England; and a committee, consisting of about forty of the first of the nobility, gentry, and clergy, was formed for conducting the subscription, Sir Thomas Viner, and Sir Christopher Pack, aldermen of London, being appointed treasurers. In a short time no less a sum than 38,000*l.* was collected. This was placed in the hands of Sir Samuel Morland, who was ordered to proceed to Geneva, there to take up his residence for a time, and distribute the fund, in the manner likely to be most serviceable to those for whom it was intended. The Elector Palatine of the Rhine, the Elector of Brandenburgh, the Duke of Wirtemburgh, and almost every Protestant prince in Europe, followed the example so far as to write earnest letters to the Duke of Savoy, entreating him to restore the remnant of the Waldenses to their native valleys, and to shelter them from any further persecution. By the instrumentality of the Swiss Cantons a kind of treaty was drawn up, called the Treaty of Piguerol, by which the Duke of Savoy bound himself, ostensibly at least, to concede certain points to the Waldenses. But it appeared in the sequel that his court, instigated by the papal agents, contrived to render this treaty of no effect.

During the latter half of the century, repeated instances occurred to show that the sovereigns of Piedmont no longer held the same kindly feelings as formerly towards their Waldensian subjects. The agents of the Inquisition acquired a power which pressed more and more heavily on the Protestants; and from 1655 to 1658, although the Waldenses were allowed to return to their native valleys, they were incessantly harassed and unjustly treated. Sir Samuel Morland remained in their neighbourhood during these three years; and in his narrative he says, "It is my misfortune that I am compelled to leave these people where I found them, among the potsherds, with sackcloth and ashes spread under them, and lifting up their voice with weeping, in the words of Job—'Have pity on us, have pity on us, O ye our friends, for the hand of God hath touched us.' To this very day they labour under most heavy burdens, which are laid upon them by their rigid task-masters of the Church of Rome, forbidding them all kind of traffic for their subsistence, robbing them of their goods and estates, banishing the pastors of their flocks, murdering the most innocent as they peaceably pass along the highways, by cruel mockings and revilings, by continual threats of another massacre, sevenfold more bloody, if possible, than the former."

The Waldenses found, that whatever might be the real feeling of the Dukes of Savoy towards them, they could not be effectually protected from outrage unless they manfully defended themselves. Accordingly at various periods, from 1658 to 1672, they heroically repelled many attacks made on them by the soldiers under the influence of the Inquisition. At the last mentioned period, however, a circumstance occurred which displayed the affection of the Waldenses for their ancient sovereigns, notwithstanding all that had occurred. A war breaking out between Savoy and Genoa, the army of the former power was entrusted to the command of a Marquis of Pionessa, who behaved so ill that he had nearly ruined the cause of the Duke of Savoy. It was at this critical juncture that the Waldenses, forgetting their past grievances, voluntarily came forward to enrol themselves in the Duke's cause, and entered into the war with such zeal and courage, that they soon retrieved the fallen fortunes of their country, and brought the war to a speedy and successful termination. This proof of their good feeling and loyalty made such an impression on the mind of the Duke, that the Waldenses felt the favourable effects of it for the next twelve or fifteen years, and might have remained in the tranquil enjoyment of their religious tenets yet longer, had it not unfortunately happened that the Duke of Savoy, who succeeded the one just alluded to, was an adherent of Louis the Fourteenth of France.

The French protestants, under the protective "Edict of Nantes," had increased to the number of two millions by the year (1643) when Louis the Fourteenth ascended the throne as a child. When he attained manhood, he was persuaded by Cardinal Mazarine and others, to revoke this edict; and there ensued a scene of persecution for a period of twenty years, which drove eight hundred thousand

persons from the kingdom, and they sought refuge principally in Holland and England. The Waldenses were surprised by the issuing of an order from their Governor, in the year 1685, that no stranger should remain in the valleys above three days, without his permission, on pain of being severely punished. At first they could not understand this, for they had not heard of a massacre which was then going on in France; but they soon found that this order was intended to prevent the fugitives from France from obtaining shelter and protection among them.

But the unchristian zeal of the French monarch against his own subjects was not enough; he compelled the Duke of Savoy to adopt similar measures in Piedmont; and the Waldenses, on the 31st January, 1686, were amazed by the publication of an order from the Duke, forbidding his subjects the exercise of the protestant religion, upon pain of death; and also decreeing the confiscation of goods, the demolition of their churches, the banishment of their pastors, and the baptizing of all their children in the Catholic faith. The Waldenses were dismayed at these announcements, especially when they found that a French army was about to enforce them. They memorialized the Duke, and obtained the interference of the Swiss Cantons in their behalf; but it became evident that the Duke was in the hands of the powerful French monarch; and indeed his secretary of state, in a reply to a memorial on the subject, candidly stated that "*the great wheels moved, and carried the little ones along with them;* that having for his neighbour a prince both powerful and jealous of his honour, the Duke was obliged to carry himself with great circumspection, and to act according to the exigencies of the times." He also remarked that the Duke, by endeavouring to preserve some of his subjects, might run the hazard of losing them all; and that, in fact, the Duke executed at Turin the orders which were issued at Versailles.

The Swiss Cantons sent commissioners to intercede between the Duke and the Waldenses; and long correspondences and interviews occurred, in a vain attempt to induce a more lenient conduct. The Duke would listen to nothing unless the Waldenses gave up all their arms; while they, on the other hand, had many reasons for suspecting that the surrender of their arms would be the preliminary to an immediate attack on the part of the hostile troops. The commissioners retired after trying all means of conciliation, and the poor mountaineers prepared to defend themselves to the best of their ability. There were about ten thousand five hundred men capable of bearing arms, from among whom some were chosen as officers. They attempted to defend all their posts; and herein appears to have been one source of their subsequent disasters; for it is supposed that if they had centred their attention upon their mountain fastnesses, they might have maintained them. The result was disastrous. A large and well appointed army, consisting of French and Piedmontese soldiers, attacked the valleys at all points, and utterly defeated the Waldenses, killing numbers, and making many of the survivors prisoners; marking their path by those atrocities which too frequently characterize a conquering army.

It does not appear that the Waldensian people had ever before been so utterly routed as they were by this memorable course of events. It is said that twelve thousand of them were committed to prison, and two thousand of their children placed with Catholic families; the prisoners were all crammed into about fourteen prisons, where they pined and perished through bad and insufficient food, tainted air, and the heats of summer. At length the Duke gave an order for their release, not that they might return to their beloved mountain valleys, but that they should cross Savoy to Switzerland, where an asylum had been offered to them. Strange indeed it may seem, that a sovereign should rather lose the presence and affection of a large body of his subjects, than allow them to follow a religion different from his own; but it is evident that he was herein merely the perpetrator of the will of the French monarch.

The prisoners, weak, emaciated, badly clothed, and suffering from disease, commenced their march over the Alps towards Geneva; but many of them died on the way. At length a small remnant reached that city, where they were received with kindness; the naked were clothed, the hungry were fed, and the sick were tended with care. From Geneva they dispersed to various parts of Switzerland, where they were universally received with charity and goodwill. Our celebrated Bishop Burnet, who happened to be travelling on the Continent at the time, thus speaks of the conduct of the Swiss:—"In this total and deplorable dispersion of the churches, the whole country has been animated with such a spirit of love and compassion, that every man's house and purse have been opened to the refugees, who have passed thither in such numbers that sometimes there have been more than two thousand in Lausanne alone, and of these there were, at one time, nearly two hundred ministers; and they all met with a kindness and frankness of heart that looked more like the primitive age revived, than the degenerate age in which we live." The same writer also remarks, in one of his *Letters from Italy*, that he found all the court of Turin ashamed of the matter, and exceedingly anxious to impress him, as an Englishman, with the fact, that the Duke had only followed the imperious demands of the French monarch, and not his own private inclination, in these proceedings.

But the exiles, though kindly and hospitably welcomed, could not forget their native valleys; they felt the yearning after home, the *mal du pays*, which constitutes so strong, and so lovely a part of our nature. On three different occasions did they attempt to return to Piedmont; but twice their plans were altogether inefficient. The first attempt was made without leaders, almost without arms, and unprovided with the most ordinary resources: the project was discovered by the governor of Lausanne, who partly by entreaty, and partly by command, induced them to desist. They then sought to devise measures for renewing the enterprise under more auspicious circumstances. With this view, they selected three men of tried courage and experience, to reconnoitre the country, to discover the most secure paths across the mountains, and the most fordable parts of the rivers; they were also instructed to ingratiate themselves with the inhabitants immediately bordering on the valleys, and thereby induce them to provide a good supply of the durable hard bread eaten in those districts, as a resource for the use of the expedition. These agents, after undergoing many dangers and hardships, returned to their companions, and reported that a passage by the Great St. Bernard mountain might be practicable. Plans were accordingly laid in secret; and on a given night the whole of the party assembled at a particular spot, or proceeded in the direction thereof. But the enterprise soon got noised abroad; and after the authorities of the place had compelled the return of the exiles, the protestant pastors of Geneva affectionately entreated them to remain in the asylum so frankly placed at their disposal. Thus terminated the second attempt.

Section 6.

Return of the Waldenses to their Valleys.

At length in the year 1689, the expatriated Waldenses, finding their continued absence from their beloved valleys quite insupportable, resolved on a third attempt to return. This proved successful; and the "glorious return of the exiles," as it has been termed, forms one of the most romantic incidents anywhere recorded in history. Dr. Beattie has treated this subject with much fulness and beauty, in his illustrated work on the Waldensian valleys; but our space will only allow us to present a brief outline of the march. The Duke of Savoy, on hearing of the two former attempts, had despatched troops to all the boundary villages between Savoy and Switzerland, to intercept the exiles on their return.

He also accused the Swiss Cantons of conniving with them; a charge which gave great uneasiness in Switzerland, and led the inhabitants to wish for the departure of their guests. An offer was made by the Elector of Brandenburg, to receive part of the Waldenses in his dominions; while others found an asylum in the Grisons, others again in Wirtemberg, and a fourth section in the Palatinate. Political circumstances, however, occasioned most of these wanderers to return to Switzerland; and a war which broke out seemed to promise that the attention of the French and Italian monarchs would be too much occupied to attend to a poor body of exiles. It was therefore unanimously resolved that a third attempt should be made to return; and Henri Arnaud, their chief pastor, was made captain of the expedition. Many of them were seized and imprisoned in the Catholic cantons, in their way to the place of rendezvous; but the majority succeeded in assembling at the forest of Nyon, in the northern margin of the Lake of Geneva. This lake separates Switzerland from Savoy, and the latter country had to be traversed before the exiles could reach the Piedmontese valleys.

On the 16th of August, 1689, after a prayer had been

offered up by Henri Arnaud in the midst of his devoted followers, the party embarked on the Lake in a number of open boats, and landed on the opposite or Savoy side. Our second cut represents the town of St. Ivoire, where the landing was effected. They then determined to march, sword in hand, towards their native valleys, and brave all the dangers that might accompany the attempt. Arnaud arranged the Waldenses in strict military order,—vanguard, main-body, and rear-guard, placing an officer over each, and commanding the whole himself. The whole arrangements were most remarkable; for Arnaud was both their chief pastor and their military commander. They proceeded with such determined resolution through the northern parts of Savoy, that they repelled several minor attacks made on them by the officials of the towns and villages; and on many occasions were treated with much hospitality by the villagers themselves. Several times they took prisoners some of the officers and civil authorities, when they suspected that an attack was meditated, and kept them as hostages for the good behaviour of others.

We may remark that the historians of this march quote one from another, one of those achievements, so hard to be credited, wherein a very small number of men defeat a very large number. The reader of history will not fail to remember many such statements; and among them is one which informs us that a handful of these Waldenses defeated with great slaughter a French force, which they encountered on the eighth day of their march, of two thousand five hundred men, with a loss of only twenty-five killed and wounded. We must dismiss the enumeration here given, and take the statement as indicating that a signal feat of heroism was exhibited by the little band, in the discomfiture of a body of troops much larger than their own, and much better provided with the necessaries of warfare and the comforts of life. Every day, for the thirty-one days that the exiles were on their march, did they encounter some hostile attack, either from Piedmontese or French troops, sometimes losing a considerable number of their comrades, but in most cases repelling their enemies with remarkable success. It seems quite evident that the attention of the Duke of Savoy was at that time directed to more important matters, and that the troops placed in the villages on the line of march were not portions of any regular army. On their road, too, the way-worn exiles experienced the usual sufferings of cold and hunger. Forced to climb high mountains, and to lie down in roofless huts, or in caves, and to find food just when and where they could, they lived as none could live but those who are supported by a strong inward conviction that they are proceeding in a just cause. On one occasion, when they had missed their way over a mountain, in the dead of the night, they had to descend it by each individual placing himself in a sitting posture, or on his back, and thus sliding downwards where the steepness was too great for him to have a firm footing, and with no better light to direct his course than was afforded him by the whiteness of the snow. At length they reached a cold and desolate valley, where there were only a few deserted shepherds' huts; and here the exhausted wanderers were compelled to halt for the night, but without being able to find even sufficient wood to light a fire. Thus painfully circumstanced, they had no choice but to unroof the huts for fuel; and by thus seeking a remedy for one evil, brought upon themselves another, for they were thereby deprived of shelter, and exposed to the injurious effects of the rain, which continued throughout the night.

When the exiles reached their native valleys, they found them occupied by hostile troops, and were obliged to pass one whole winter in holes and caves in a mountain fortress called the *Balsille*. The exiles were all men, numbering, after all their losses had been taken into account, about eight hundred; and it is supposed that their wives and children came to them at an after period, when the storm of affliction had somewhat abated.

Political events, which had more than once favoured the Waldenses, again befriended them. There had for some months been a growing hostility between Savoy and France, which helped to distract the attention of the Duke from his Waldensian subjects; and this hostility at last broke out into open war. The Duke, having had such abundant proofs of the courage and determination of the Waldenses, offered them all that they had ever demanded, if they would enrol themselves in his cause. The Waldenses had never voluntarily deserted the House of Savoy, and they now gladly availed themselves of the Duke's offer. Among the first tokens of restoration to their prince's favour, was the return of four captives from the prisons of Turin; and from this time their prospects became more cheering; for intelligence reached them that the Duke had given his assurance, not only of liberty of conscience, but of permission for their pastors to preach even at Turin. After several exploits in the war with France, in which they gave ample proof of the loyalty which this happy change in their favour had excited, and in which Henri Arnaud acquired high distinction, a circumstance occurred which elicited from the Duke a frank and full declaration of their rights. A party of Waldenses having captured a French courier with despatches, Baron Palavicino, commander of the Duke's troops, directed that they should be presented by Arnaud and two other Waldensian chiefs, to his royal highness, who after receiving them in the most gracious manner, addressed them in these words: "You have only one God and one prince: serve them faithfully. Hitherto we have been foes; henceforth let us be friends. To strangers alone our misfortunes are to be attributed; but if, as is your duty, you expose your lives for me, I in like manner will expose mine for you; and while I have a morsel of bread, you shall have your share." Subsequent events shewed that these protestations, though worth something to the Waldenses, were partly insincere and intended to serve a temporary purpose.

During the forty years which followed these events, the Waldenses appear to have settled peacefully in their native valleys, and to have followed their usual occupations, and exercised their religious duties, without much interference from other parties. In 1728, however, an order was issued by the Duke to restrict the Waldensian country within certain limits, and to banish all those who had not been born within the new frontier. These amounted to a very considerable number; for the Waldenses, after the recovery of their valleys, had been joined by many foreign protestants, who at the invitation of the Duke had settled in the valleys. The blow was as severe as unexpected and undeserved; driven from the habitations which they had earned by fighting for the prince who now turned against them, the unhappy wanderers (the inhabitants of the outer districts) set out in search of a new country in the territory of Wirtemburgh, where their descendants are said still to exist, though in very reduced numbers and impoverished circumstances.

Section 7.

Present Condition of the Waldenses.

Our limits require that we should pass rapidly over the events of the larger part of the last century, and indeed of the present too, especially as the Waldenses have not suffered such notable and barbarous persecutions as some already noticed. Yet have they repeatedly felt that the sovereign to whose line of princes they have been faithful subjects for eight hundred years, can forget benefits received, and promises solemnly made. Their history points to many periods in the eighteenth century, when their religious liberties were more or less attacked, or their valleys were in part wrested from them, or they were made to bear a larger portion of the burden of the state than the Roman Catholics of Piedmont. Still, however, they have uninterruptedly maintained their position in the Piedmontese valleys, and have experienced repeatedly the kind and brotherly feeling which England has manifested. Documents have been recently brought to light, which shew that the English ambassadors at Turin have been often charged to interfere between the Waldenses and their sovereigns; and it is more than probable, that if we could learn the details of those periods when busy political events overshadow those of smaller import, we should find that English influence had greatly lessened the amount of persecution which the Waldenses had suffered.

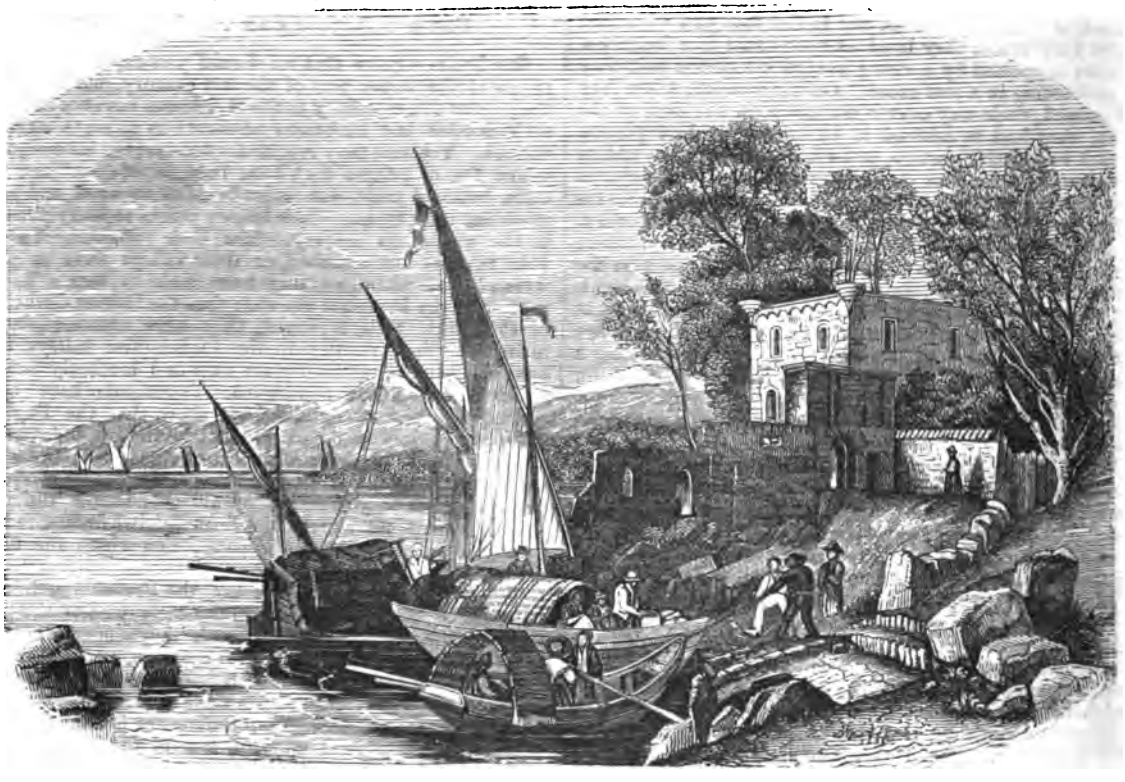
When Piedmont formed part of the French dominions, which it did for several years, in the early part of the present century, the Waldenses, though they shared with the other inhabitants the evils of frequent wars, were left undisturbed in the exercise of their religious faith. But on the return of the House of Savoy to their ancient possessions in 1815, repeated and annoying interferences were manifested, which have continued more or less to the present day. Five years after the conclusion of the war (which had been years rather of trouble than of peace to the Waldenses), the attention of an amiable and benevolent man was directed towards them, viz., the Rev. Stephen William Gilly, now prebendary of Durham, who has done more than any other person to make the cause and condition of the Waldenses

known in England. He states that he happened, in the year 1822, to attend a meeting of the Society for promoting Christian Knowledge, on the day when a very affecting letter was read from one of the Waldensian ministers, who requested that some aid might be sent in money or books to the protestant congregations in the mountains of Piedmont, who were struggling hard against poverty and oppression. Mr. Gilly was induced, by this and other circumstances, to visit the Waldensian valleys, and he published in 1824 a *Narrative of an Excursion to the Mountains of Piedmont*, in which he described the valleys, the towns and villages, the inhabitants, their churches and religious offices, their manners and customs, occupation, domestic and moral character, and general condition both social and political. His details attracted much attention to the subject; and many contributions, both in money and religious books, were forwarded from the religious societies of England and from private individuals.

The Rev. Mr. Gilly made a second journey to the valleys in 1829, his objects being, as he states, the following: first, to judge, by personal observation and inquiry, how certain sums of money placed at his disposal might be best employed not only for the benefit of the Waldensian church, but for the advantage of the protestant cause at large in Northern Italy; second, to see how far that aid had proved effectual which had already been extended to the Waldenses, and to examine into the condition of several hospitals and schools which had been founded and endowed by funds raised in the protestant countries of Europe; and in addition, to extend his knowledge of the condition and character of that people. After his return, Mr. Gilly opened a correspondence with the English Government, to induce them to interfere diplomatically in the preservation of the rights of the Waldenses; and in 1831 he published the fruit of his labours in the *Waldensian Researches*. Still more recently the same gentleman has contributed the articles "Valdo" and "Valdenses" to the new edition of the *Encyclopædia Britannica*, in which he brings down the history to very recent times.

Dr. Beattie, too, has contributed to make English readers acquainted with the Waldenses and their valleys, by the publication in 1838 of a beautifully illustrated volume on the subject; and the sympathy of England towards her protestant brethren of Piedmont is now so thoroughly awakened that we shall probably continue to hear promptly of all that may affect them.

The recent information afforded by Mr. Gilly in the article just referred to, brings down our knowledge of this remarkable band of Christians to a late date. He terminates his notice of their career down to the year 1838, with the following paragraph:—"The difficulties with which the Valdenses have now to contend are poverty and reduced numbers, being confined to limits which do not produce subsistence for more than a very limited population. They also labour under the disadvantage of having to learn three languages before they can receive competent instruction. Their national language is Italian; their vernacular tongue is a provincial dialect, peculiar to their district; and the language of instruction is French, because in that only they can obtain books of devotion used by protestants. If the Government of Great Britain should cease to exercise its good offices at the Court of Turin, in behalf of the protestants of Piedmont, or if the people of Great Britain should become indifferent to the moral and spiritual wants of this impoverished community, the religious liberties of the Valdenses will be no more, and the lamp of this little mountain church will be extinguished for ever." But in a postscript of the article, Mr. Gilly states that he has just received information of three edicts which strike at the very root of their Christian privileges. The first is an article of the Code promulgated at Turin, which forbids the printing or manuscripts, for their use, in other countries, unless they shall have previously passed the censorship at Turin; this will have the effect of cutting off the future supply of religious books and tracts. The second is an order published in the Turin Gazette of 27th December, 1840, to this effect: "By decree of the holy congregation of Rome, the New Testament of our Lord Jesus Christ, translated into the Piedmontese language, is condemned and prohibited;" although this translation had passed the censorship, and had been legally introduced into Piedmont, seven years before! The third is a message sent to the chief pastor of the Waldenses by the Romish president at Turin, demanding by what authority a library of books had been placed in their head school or college!



ST. IVOIRE, LAKE OF GENEVA;
The Landing-Place of the Waldenses, on the return from Exile in 1689

JOHN W. PARKER, PUBLISHER, WEST STRAND, LONDON.

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CANADIAN SKETCHES.

VILLAGE OF STANSTEAD, NEAR THE AMERICAN BOUNDARY.

I.

GEOGRAPHICAL SKETCH.

THE present is the first of a short series of articles illustrative of Canada, its resources, the character of its inhabitants, its principal towns, and the events by which the present state of things has resulted from the past. As one of the most important of England's colonies, Canada obviously deserves a portion of attention, of a character similar to that which we have bestowed on Java, the Ionian islands, British Guiana, and other portions of the world. The reader will gain a more complete idea of the subject by following us through a rapid geographical sketch, with a map of Canada before him.

Canada occupies a large portion of the northern regions of America. Its southern extremity is Point Pelée, about the latitude of 42° north; the eastern extremity is Cape Gaspè, near the mouth of the River St. Lawrence, in longitude 62½° west; and the western is at Fort William, on Lake Superior, in longitude 90°. With regard to the northern extremity, no particular boundary is established, since the Canadian territories and those surrounding Hudson's Bay are not definitely separated; it is usual, however, to consider that all the country north of the Great Lakes, whose waters fall into the St. Lawrence, belongs to Canada; while the districts watered by streams falling into Hudson's Bay belong (nominally, if not virtually) to the Hudson's Bay Company*.

The boundary of Canada is, indeed, rather ill-defined; for not only are the British possessions, northward, eastward, and westward of it, vague and unsettled, but until very recently the unfortunate "boundary question" between the governments of England and America, left open a disputed territory south of the St. Lawrence. This dispute arose out of conflicting opinions as to the interpretation of certain clauses in an agreement between the two countries many years ago; but the difference was amicably settled by a treaty signed during the last year at Washington, Lord Ashburton having been specially sent over by this country in order to settle the question. According to the best estimates, Canada may be deemed to have a length from east to west of about a thousand miles, and an average breadth of three hundred.

The grandest feature in Canada is constituted by the *Lakes*, the largest collections of fresh water in the world; five of which form a connected chain westward of the river St. Lawrence. The most westerly of these, Lake Superior, is four hundred miles long, and nearly two

* The reader will find an historical notice of the Hudson's Bay Company, in two Supplements on Fur and the Fur Trade, contained in *Saturday Magazine*, Vol. XX., p. 41, and Vol. XXI., p. 257.

hundred broad; it is surrounded by a line of coast seventeen hundred miles in circuit, of which the northern part belongs to Canada, and the southern to the United States. Its surface is supposed to be equal to six-sevenths of that of all England. Its greatest depth is about eight hundred feet, but this is only two hundred below the level of the sea, for the surface of the water in the lake is about six hundred feet above that in the open ocean, an elevation which gives rise to many noble "rapids" and "cataracts," in the flow of the waters of the lake towards the Atlantic.

The waters accumulated in this noble lake from the numerous rivers which flow into it, find an outlet at the south-eastern extremity, where they form another lake called *Lake Huron*. The channel by which this communication is made is called St. Mary's Strait; and in this strait, about twelve miles from the lake, are powerful *rapids*, occasioned by the vast mass of water forcing its way through a small channel. As these rapids are deemed hazardous, canoes seldom venture on the passage; but the natives are accustomed to adopt a "portage," that is, to carry their canoe on their shoulders by land, for the distance during which the rapids occur. Our countrywoman, Mrs. Jameson, however, made a bold descent along the rapids, which she thus describes in her lively work on Canada (*Winter Studies and Summer Rambles*):—

The canoe being ready, I went to the upper end of the portage, and we launched into the river. It was a small fishing canoe, about ten feet long, quite new, and light and elegant, and buoyant as a bird upon the waters. I reclined on a mat at the bottom, Indian fashion, (there are no seats in a genuine Indian canoe); in a minute we were within the verge of the rapids, and down we went with a whirl and a splash! the white surge leaping around me—over me. The Indian, with astonishing dexterity, kept the head of the canoe to the breakers, and, somehow or other, we danced through them. I could see, as I looked over the edge of the canoe, that the passage between the rocks was sometimes not more than two feet in width, and we had to turn sharp angles, a touch of which would have sent us to destruction: all this I could see through the transparent eddying waters; but I can truly say I had not even a momentary sensation of fear, but rather a giddy, breathless, delicious excitement. I could even admire the beautiful attitude of a fisher, past whom we swept as we came to the bottom. The whole affair, from the time I entered the canoe till I reached the landing-place, occupied seven minutes, and the distance is about three-quarters of a mile.

Mrs. Jameson was the first European female who had descended these rapids; an exploit which won for her great admiration among the natives, who estimate personal courage as a very high attribute.

After having passed these rapids, and also a few islands situated in the middle of the strait, the flood of waters enters the Huron. This fine lake is of very irregular form, but is supposed to have a boundary coast of about a thousand miles. The surface of its waters is six hundred feet above the Atlantic, but the depth has been estimated very differently by different writers. In various parts of this lake are numerous islands, some of them as much as seven miles in length; and by their congregation into groups or chains, the lake is partially separated into different portions, to which the Indians have applied distinctive names. The waters of this lake, like those of Lake Superior, are about equally divided between Canada and the United States, the boundary line passing through their centres. Lake Michigan, however, the third of the series, which is connected with the west end of Huron, is wholly in the United States, and therefore need not be described here.

The waters from Huron leave it at the southern extremity by the River St. Clair, which, after passing through a small lake of the same name, empties itself into Lake Erie, the declivity between the two lakes being about thirty feet. Erie is of an elongated shape, extending nearly south-west and north-east, being about two hundred and sixty miles long, by sixty in breadth. The northern shore, belonging to Canada, is somewhat rugged and precipitous; but the American shore is flat and low.

At the extreme eastern boundary of this lake a short river, the Niagara, proceeds due north for a distance of about thirty miles, into Lake Ontario, into which all the waters of the other lakes thus empty themselves. About midway along this river occurs that remarkable descent in the ground, which occasions the famous "Falls of Niagara," (a description of which has been given in former volumes*.) As it is quite impossible to effect a passage from Erie to Ontario, or in a contrary direction, by means of this river, a canal, called the Welland Canal, has been cut from the one to the other, a few miles westward of the Niagara, along which a considerable traffic is maintained. Lake Ontario, the last of this majestic series, is about a hundred and seventy miles long, by sixty broad, and its surface is two hundred and thirty feet above the level of the sea.

At the eastern extremity of the Ontario, the waters of these mighty lakes, comprising Superior, Huron, Michigan, Erie, and Ontario, form the commencement of the St. Lawrence, a river worthy of the sources whence it receives its supply. In the upper part of this river occurs a very remarkable cluster of islands, many hundreds in number.

Nothing can possibly exceed in singularity the scene which presents itself to the traveller, on entering that vast expanse of the noble St. Lawrence, known, on account of its numerous channels amongst the granite rocks, as the "Thousand Islands." Here Nature appears to have used her utmost fancy in preparing a grand proscenium to feast the wanderer's eye, ere it reach the vast open seas of fresh water which he is about to launch out upon. Of immense width, the St. Lawrence winds, in arms of every dimension, through a rocky country.

It is supposed that at some very remote period the waters of Canada, pent up within rocky barriers for centuries, suddenly burst through the opposing obstacle, forming at once the Cataract of Niagara, and the shattered fragments which now constitute the "Thousand Islands."

The St. Lawrence proceeds nearly in a north-east direction throughout the whole of its course, forming the boundary between Canada and the United States from Lake Ontario to latitude 45°; after which the boundary is wholly southward of the river, and follows a course which may be thus briefly indicated. It runs eastward along the parallel of 45° latitude across Lake Champlain, to near the sources of the Connecticut river, between 71° and 72° longitude; and then follows the course of a ridge of mountains which separates the streams flowing northward into the St. Lawrence from those which flow southward into the State of Maine. Near the junction of Canada, New Brunswick, and the United States, is situated the district which occasioned so much angry discussion as the "boundary question;" but this question rather affected New Brunswick and Nova Scotia than Canada. Stanstead, the village represented in our frontispiece, is situated in this part of Lower Canada, so close to the American boundary, as to obtain the designation of a "boundary village." But although, in a geographical sense, Canada has been affected by the unsettled state of this question, yet New Brunswick has been, and is likely to be, much more closely affected in a political point of view. It is with reference to the interests of New Brunswick that the English Government chiefly rested their arguments in this matter; and we will therefore postpone our notice of the subject to a sketch of New Brunswick, which will follow these articles.

We resume our journey down the St. Lawrence. Lake St. Francis and Lake St. Louis—names which

* See *Saturday Magazine*, Vol. II., p. 242; Vol. V., p. 3; and Vol. VI., p. 10.

indicate the French monarchs under whom some of the early voyages were made, or perhaps the Saint's days on which they were first seen by the French,—are two enlargements of the river, occurring a little to the north of the boundary-line, and reaching to the island of Montreal, which contains the town of the same name. The river Ottawa, a very considerable tributary, falls into the St. Lawrence at this point. Of this river, and of the romantic adventures of the Fur-traders who navigated it, we gave an account in the Supplement for January, 1842. Beyond the point of junction of these two rivers, we come to Lake St. Peter, another enlargement of the St. Lawrence, about twenty-five miles long by nine broad; and the river generally at this part is so wide and deep, that although Montreal is nearly six hundred miles from the Gulf of St. Lawrence, vessels of six hundred tons burden can sail up to it without difficulty. Somewhat to the north-east of this lake, the river St. Maurice contributes its waters to those of the St. Lawrence; and near it occurs the Richelieu rapid, a point where the narrowness of the river gives increased force to its current. Sir R. Bonnycastle, in his recent work on Canada, makes the following remarks on the portion of the St. Lawrence between Montreal and Quebec:—

I observed that both sides, particularly the northern bank of the St. Lawrence, were covered by a continuous settlement, apparently in a very flourishing condition. Indeed, it may with propriety be deemed a continuous village all the way to Three Rivers (the name of a Canadian county or district); and as there is a fine sandy beach, there is every facility for obtaining easily the supply of food which the St. Lawrence affords in such abundance. This continuity of farms may, without exaggeration, be said to reach from Quebec, with a few intervals, all the way to Montreal; thus affording a well-watched frontier in war, an easy communication, and excellent opportunities of transporting the produce of the interior in peace, whenever the rich country at the back of this belt of settlement shall be opened.

At that part of the river's course where Quebec is situated, the St. Lawrence is thirteen hundred yards wide; but beyond this the width increases in a very remarkable degree, so that at the very mouth the distance between the opposite banks is more than a hundred miles. The whole course through which the waters flow from the western extremity of Lake Superior, through the chain of lakes, and thence onward to the mouth of the St. Lawrence, is estimated at about nineteen hundred miles.

This extensive water-communication, forming as it does the southern boundary of Canada throughout nearly its whole extent, must necessarily have considerable influence on the country; and we may accordingly divide the latter into three large sections, regulated in their outlines, by their proximity to the Lakes. The first of these comprehends what is generally termed Lower Canada, that is, all the land northward of the St. Lawrence, and eastward of the Ottawa river. The middle section comprises a region bounded on the north-east by the Ottawa, on the south-east by the St. Lawrence, Ontario, and Erie, and on the west by St. Clair and the Huron, forming a territory nearly of a triangular form, and constituting with tolerable accuracy what is now known as Upper Canada. The western section comprehends all the country northward of Lake Superior.

In characterising these sections, we will begin with the western, which may be dismissed in a few words. It is a district almost wholly uninhabited by Europeans; the only settlers, except the native Indian tribes, being a few fur-hunters. It abounds with small lakes, and is supposed to have a fertile soil.

The middle section constitutes what is generally deemed Upper Canada, and is that part of the country to which emigrants generally proceed. The northern part of this section, the most removed from the Lakes, is still almost entirely occupied by the native tribes, few Europeans having yet taken up their abode there. The portion immediately northward of Lake Ontario consists of a table-land and a series of natural terraces. But the western portion forming an equilateral triangle between Erie and Huron, is very flat, and is that to which the attention of emigrants is more particularly directed. This triangle measures about two hundred miles on each of its sides; and the whole tract is an alluvial soil of great fertility, containing neither stones nor gravel. Most of it is covered with large forests of maple, beech, oak, bass-wood, ash, elm, hickory, walnut, chesnut, cherry, birch, cedar, and pine. In the midst of these woods, and sometimes on the banks of the rivers, there are prairies, or natural meadows, of moderate size, generally covering a few thousand acres, and containing on them small scattered clumps of lofty pines, white oak, and poplar. In this middle section are two canals; one of which is the Rideau Canal, connecting Lake Ontario with the river Ottawa, and extending a distance of a hundred and thirty miles. The other is the Welland Canal, alluded to before as forming a channel of communication between Ontario and Erie, avoiding the Niagara falls; it is about forty-two miles in length.

The eastern section, comprising that portion of Lower Canada which is north of the St. Lawrence, is the part which has been longest settled. It includes Quebec and Montreal, the two most important towns in Canada, as well as many other towns on the banks of St. Lawrence. The populated districts, however, do not extend far inland; for the native inhabitants are still almost the only persons met with at any considerable distance from the river. And even of this section, only that portion which is westward of Quebec has been colonized to any considerable extent; for the country north-east of Cape Torment, situated about thirty miles below Quebec, is almost wholly unknown, even in the immediate vicinity of the river.

The portion of Canada not included in our enumeration, and lying south of the St. Lawrence, is not great in extent, and has hitherto received less attention than it deserves as a settlement; partly on account of the long-pending dispute respecting the boundary question. The district is known to contain numerous small lakes; but it is at present very thinly inhabited.

With regard to the climate of Canada, it is stated to bear considerable resemblance to that of Northern Germany, though in a more southern latitude. From two to four months in the year, the greater part of the country is covered with snow, and most of the rivers are coated with ice during a similar period. The temperature sometimes falls so low as 20° below zero of Fahrenheit, that is, 52° below the freezing point; while on the other hand, the Summer temperature frequently rises to 100°; the mean heat in July being about 70°. The rain which falls is moderate in quantity, and fogs are extremely rare; but thunder-storms are very frequent, and often productive of much damage.

YOUTH is the season of the greatest danger: the passions are strong, the judgment is weak, and there is little experience; the world is flattering and enticing, and Satan is laying his snares in every path. If the young have nothing better to look to than their own reason and earthly counsellors, they are sure to "go wrong;" if they have nothing to lean upon but their own strength, they are sure to fall. Look to the word of God: take that for your guide, your daily guide in life; pray God to fix it in your heart, that you may remember its holy precepts in the hour of temptation, and be preserved by them from danger. And never be ashamed of confessing that your hope and trust, your comfort and delight, are resting on the sure promises of God. While the sons and daughters of vanity are fluttering about in their foolish pleasures, which are as a wasting lamp that will soon expire in outer darkness, do ye, Christian children, delight yourselves wholly in the Lord; there can be no happiness but in Him and from Him. "Remember now thy Creator in the days of thy youth." "Lay up for yourselves treasures in heaven."—SLADE.

EASY LESSONS ON REASONING.

Lesson VIII.

§ 1. It has been shown, how, by taking an inadequate view of an individual, disregarding every point wherein it differs from certain other individuals, and abstracting that wherein it agrees with them, we can then employ a Common-term, as a Sign to express all or any of them: and that this process is called "generalization."

It is plain that the same process may be further and further extended, by continuing to abstract from each of the Classes [or Common-terms] thus formed, the circumstance wherein it agrees with some others, leaving out and disregarding the points of difference; and thus forming a still *more* general and comprehensive term.

From an individual "Cedar" for instance you may arrive in this manner at the notion expressed by the Common-term "Cedar," and thence again proceed to the more general term "Tree," and thence again, to "Vegetable" &c.

And so also, you may advance from any "ten" objects before you, (for instance, the fingers; from which doubtless arose the custom of reckoning by tens) to the abstract-term,—the number "ten;" and thence again, to the more abstract-term, "number;" and ultimately to the term "quantity."

§ 2. The faculty of Abstraction,—at least, the ready exercise of it in the employment of Signs, [Common-terms] seems to be the chief distinction of the Human Intellect from that of Brutes. These, as is well-known, often display much intelligence of another kind, in cases where *Instinct* can have no place: especially in the things which have been *taught* to the more docile among domesticated animals. But the Faculty of *Language*, such as can serve for an *Instrument of Reasoning*,—that is, considered as consisting of arbitrary *general Signs*,—seems to be wanting in Brutes.

They do possess, in a certain degree, the use of Language considered as a *mode of communication:* for it is well known that horses, and dogs, and many other animals, understand something of what is said to them: and some Brutes can learn to utter sounds indicating certain feelings or perceptions. But they cannot,—from their total want, or at least great deficiency, of the power of Abstraction—be taught to use language as an Instrument of Reasoning.

Accordingly, even the most intelligent Brutes seem incapable of forming any distinct notion of *number:* to do which evidently depends on Abstraction. For in order to *count* any objects, you must withdraw your thoughts from all *differences* between them, and regard them simply as *units*. And accordingly, the Savage Tribes (who are less removed than we are from the Brutes) are remarked for a great deficiency in their notions of *number*. Few of them can count beyond ten, or twenty: and some of the rudest Savages have no words to express any numbers beyond five.

And universally, it is in all matters where the exercise of *Abstraction* is concerned, that the inferiority of Savages to Civilized men is the most remarkable.

§ 3. That we do, necessarily, employ Abstraction in order to *reason*, you will perceive from the foregoing explanations and examples. For you will have observed that there can be no Syllogism without a Common-term.

And accordingly, a *Deaf-mute*, before he has been taught a Language,—either the Finger-language, or Reading,—cannot carry on a train of Reasoning, any more than a Brute. He differs indeed from a Brute in possessing the mental *capability* of employing Language; but he can no more *make use* of that capability, till he is in possession of some *System of arbitrary general-signs*, than a person born blind from Cataract can make use of his capacity of Seeing, till the Cataract is removed.

You will find accordingly, if you question a Deaf-mute who has been taught Language after having grown up, that no such thing as a train of Reasoning had ever passed thro' his mind before he was taught.

If indeed we did reason by means of those "Abstract-ideas" which some persons talk of, and if the Language we use served *merely* to *communicate* with other men, then, a person would be able to reason, who had no knowledge of any *arbitrary Signs*. But there are no grounds for believing that this is possible; nor consequently, that "Abstract-ideas" (in that sense of the word) have any existence at all.

You will have observed also from what has been said, that the Signs [Common-terms] we are speaking of as necessary for the Reasoning-process, need not be addressed to the *ear*. The signs of the numbers,—the figures 1, 2, 3, 4 &c. have no necessary connexion with *sound;* but are equally understood by the English, French, Dutch &c. whose *spoken*-languages are quite different.

And the *whole* of the *written*-language of the Chinese is of this kind. In the different Provinces of China, they *speak* different Dialects: but all *read* the same Characters; each of which (like the figures 1, 2, 3 &c.) has a sense quite independent of the sound.

And to the Deaf-mutes, it must be so with *all* kinds of Language understood by them; whether Common Writing, or the Finger-language*.

§ 4. By the exercise of Abstraction, (it is to be further remarked) we not only can separate, and consider apart from the rest, some circumstance belonging to every one of several individuals before the mind, so as to denote them by a general ["common"] term,—and can also, by repeating the process, advance to *more and more general* terms;—but we are also able to fix, arbitrarily, on whatever circumstance we chuse to abstract, according to the particular purpose we may have in view.

Suppose for instance it is some individual "Building" that we are considering: in respect of its *materials*, we may refer it to the class (suppose) of "Stone-buildings," or of "wooden," &c. in respect of its *use*, it may be (suppose) a "house," as distinguished from a Chapel, a Barn &c. in respect of Orders of *Architecture*, it may be a "Gothic-building," or a "Grecian" &c. in respect of *size*, it may be a "large" or a "small building;" in respect of *colour*, it may be "white," "red," "brown," &c.

And so, with respect to anything else that may be the subject of our reasoning, on each occasion that occurs. We arbitrarily fix on, and abstract, out of all the things actually existing in the subject, that one which is important to the purpose in hand. So that the same thing is referred to one Class, or to another, (of all those to which it really *is* referable) according to the occasion.

For instance, in the example above, you might refer the "building" you were speaking of, to the Class

* There have been some very interesting accounts published, by travellers in America, and by persons residing there, of a girl named Laura Bridgeman, who has been, from birth, not only Deaf-and-dumb, but also blind. She has however been taught the finger-language, and even to read what is printed in raised characters, and also to write.

The remarkable circumstance in reference to the present subject, is, that when she is alone, her *fingers are generally observed to be moving*, tho' the signs are so slight and imperfect that others cannot make out what she is thinking of. But if they inquire of her, she will tell them.

It seems that, having once learnt the use of *Signs*, she finds the necessity of them as an *Instrument of thought*, when thinking of anything beyond mere individual objects of sense.

And doubtless every one else does the same; tho' in *our* case, no one can (as in the case of Laura Bridgeman) *see* the operation: nor, in general can it be *heard;* tho' some few persons have a habit of occasionally audibly talking to themselves; or as it is called, "thinking aloud." But the Signs we commonly use in silent reflexion are merely mental *conceptions* of uttered words: and these doubtless, are such as could be hardly at all understood by another, even if uttered audibly. For we usually think in a kind of *short-hand*, (if one may use the expression) like the notes one some times takes down on paper to help the memory, which consist of a word or two,—or even a letter,—to suggest a whole sentence; so that such notes would be unintelligible to any one else.

It has been observed also that this girl when asleep, and doubtless dreaming, has her fingers frequently in motion: being in fact talking in her sleep.

[or Predicable] of *white*-buildings,"—or even of "white-*objects*,"—if your purpose were to shew that it might be used as a *land-mark:* if you were reasoning concerning its danger from *fire*, you might class it (supposing it were of *wood*) not only with such *buildings*, but also with haystacks and other combustibles: if the building were about to be *sold*, along with, perhaps, not only other buildings, but likewise cattle, land, farming-implements &c. that were for sale at the same time, the point you would then abstract would be, its being an *article of value*. And so, in other cases.

§ 5. You thus perceive clearly that we are not to consider each object as *really* and properly *belonging to* and forming a portion of, some *one* Class only, rather than any other that may with truth be affirmed of it: and that it depends on the *particular train of thought* we happen to be engaged in, *what* it is that is important and proper to be noticed, and what again, is an insignificant circumstance, and foreign from the question.

But some persons who have been always engaged in some one pursuit or occupation, without attending to any other, are apt to acquire a narrow-minded habit of regarding almost everything in one particular point of view: that is, considering each object in reference only to their own pursuit.

For instance, a mere Botanist might think it something strange and improper, if he heard an Agriculturalist classing together, under the title of "artificial *grasses*," such plants as Clover, Tares, and Ryegrass; which, botanically, are widely different. And the mere Farmer might no less think it strange to hear the troublesome "weed" (as he has been used to call it) that is known by the name of "Couch-grass," ranked by the Botanist as a species of "wheat;" the "Triticum repens," the farmer having been accustomed to rank it along with "nettles, and thistles;" with which it has no *botanical* connexion.

Yet neither of these classifications [or "generalizations"] would be, in itself erroneous and improper: though it would be improper, in a Work on *Natural-History* to class plants according to their *agricultural uses;* or, in an agricultural Treatise, to consider principally (as the Botanist does) the structure of their *flowers*.

So also, it would be quite impertinent to take into consideration a man's learning or ability, if the question were as to the allowance of food requisite for his support; or his stature, if you were inquiring into his qualifications as a statesman; or the amount of his property, if you were inquiring into his state of health; or his muscular strength, if the question were as to his moral character: though each of these might be important in reference to a different inquiry.

The great importance of attending to these points, you will easily perceive by referring to the analysis of Reasoning which has been above given. For as the proving of any Conclusion consists in *referring* that of which something is to be affirmed or denied, to a Class [or Predicable] of which that affirmation or denial can be made, our ability in Reasoning must depend on our power of *abstracting* correctly, clearly and promptly, from the subject in question, that which may furnish a "middle-term" suitable to the occasion.

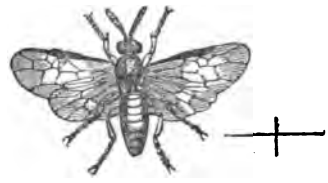
NOTE. In case any student should find it difficult to understand any part of these Lessons, he may write to the Publisher of the *Saturday Magazine*, (endorsed for the Writers of the Lessons,) stating his difficulty, and an explanation may perhaps be furnished in some succeeding Lesson.

A PROVERB is the wisdom of many, and the wit of one.

When several wise men have drawn some conclusion from experience and observation, a man of wit condenses it into a short pithy saying, which obtains currency as a Proverb.

ON INSECTS WHICH ARE INJURIOUS TO THE FARMER.

IV.



THE SAW-FLY.

THE saw-flies (which betoken the appearance of the black caterpillar upon our turnip-crops) usually begin to show themselves in May. The males appear a few days earlier than the females; the latter, when they appear, are easily to be distinguished by their larger size, which makes their bright orange colour the more conspicuous. Both sexes are very active, and are chiefly observed on the wing. When the female is seen walking on a leaf, it is generally for the purpose of depositing her eggs. They are however torpid in wet or cloudy weather, and also at close of day they rest beneath the leaves or in the flowers of some of the cruciferous plants.

When the female saw-fly is about to deposit her eggs, she first carefully examines the leaf, and if, after she has commenced cutting it, she finds it not quite adapted to her purpose, she rejects it, and begins another. It is a curious fact that she almost universally avoids laying her eggs in the seed-leaves of the turnip, as if she were endowed with so much knowledge of the economy of the plant, as to be aware that the seed-leaves may very possibly be withered up before her young progeny make their appearance. When the parent-fly has found a suitable place for her brood, she fixes herself on the edge of the leaf, and thrusts her saws into it nearly up to their base. She then brings them round, forming the segment of a circle, and separating the cuticles. Thus she forms a cavity, which may be seen with the help of the microscope, by holding the leaf up to the light. This process occupies about half a minute, and is immediately followed by the deposition of an egg along with which a small portion of fluid is injected into the leaf to keep it moist. The four lancets are then withdrawn, and a similar operation commenced anew, until five or six eggs have been laid, each in its distinct cell. Each female is capable of laying from two hundred and fifty to three hundred eggs, and sometimes she deposits twenty eggs in a single leaf. As soon as she has done laying, she expires, yet it is affirmed by those who have had the best opportunity of gaining accurate information, that such is the vitality of the sex, that she will walk, run, and even attempt to fly, after decapitation. Mr. Marshall had a female saw-fly standing and dressing its wings for many hours after losing its head, and it actually lived in this state for three days.

In fine warm weather the eggs of the saw-fly are hatched in five days or even less; but if the weather be wet or cold, the young caterpillars may not appear for six, seven, or ten or eleven days. They then eat their way through the thin cuticle of the leaf, and are at first only the tenth of an inch in length, almost white, and scarcely visible. They begin to feed on the under part of the leaves in less than two minutes, and that so voraciously that in a few hours they have often drilled through them. In this early state they cling very firmly to the leaf, and in contrast to their subsequent condition, can scarcely be shaken from it. They soon become of a dull greenish-white colour, with jet-black shining heads. In about a week from the time they are hatched, they change their skin for the first time, and become increasingly voracious. They are now one-fifth

of an inch in length, and much darker in colour, some of them being almost jet-black. Thus they change their skins three times at intervals of from six to seven days. When full grown they are about three-quarters of an inch long, and of the thickness of a crow-quill. They are perfectly smooth, of a dark grey or slate-colour, with small black heads. The body is composed of twelve segments besides the head. The caterpillar has twenty-two legs, and the pair at the extremity of the body are so formed as to enable it to take fast hold of an object. These caterpillars are well known to delight in the sun, and to lie curled upon a leaf enjoying its rays. While they are in their first skins they have the power of emitting a silken thread to let themselves down when shaken from a leaf, and to regain their position when the danger is passed; but at a later period they lose this power, and are therefore easily detached, and have some difficulty in regaining their position. The full growth is attained by this caterpillar in about three weeks, and very soon afterwards it descends from the leaves, and enters the earth, burying itself one or two inches below the surface, and forming a cocoon of a beautiful silvery texture within, though from its glutinous nature it adheres to particles of earth and sand, and looks on the outside like a small lump of earth. The time which is occupied by the insect in the chrysalis state is different according to the season. Some of the early broods come out as perfect insects in three weeks; while later in the season the change may occupy three months ere it be accomplished, and it is thought probable that one-third remain in the cocoons all through the winter.

THE CHRYSALIS OF THE SAW-FLY IN ITS DIFFERENT STAGES.

In noticing the causes which may operate to check the progress of this destructive agent, we shall first allude to those which affect the insect in its perfect state. The prevalence of cold moist weather, during the period when the saw-fly first appears, may certainly effect the saving of the crop, for it is well known that the insect only becomes vigorous, and deposits its eggs, in sunny weather. Now this being the case, it naturally leads us to think of the first step which may be taken to prevent the progress of the evil. If it is found that the insect requires dryness and warmth for laying its eggs, might not the frequent watering of the turnips, when first the fly appears, be the most evident check on its proceedings? Mr. Curtis thinks that in all probability the crop might thus be saved; but of course this plan supposes great watchfulness on the part of the farmer, to detect the fly immediately on its appearance, and promptly to take the necessary steps. Sometimes the turnip-fly is the object of pursuit to the swallows, and they perform an essential service to the farmer in its destruction. But this is a remedy beyond his control, and it only remains to us to state a suggestion that seems to promise well, *i. e.*, the scattering of finely powdered salt over the turnips when they are wet, and thus preventing the parent fly from depositing her eggs. We are not aware of any other preventative that has been proposed in this early state of the insect, though it is evident that it would be of far greater importance thus to check the evil at its commencement, than at any after period in the existence of the insect.

Most of the plans relate to the time when the caterpillars have actually made their appearance. The occurrence of rains is not less hurtful to the young caterpillar than to the perfect insect; indeed, if wet weather prevails, it so affects the nature of their food, by making the leaves unwholesome to them, that they die off in great numbers. Just as silkworms, when fed on wet leaves, die of a kind of dysentery, so the black caterpillars are affected by the same cause, and though they may recover from the effect of partial showers, yet they are unable to withstand a rain of any continuance. Those who closely watch the appearance and changes of the insect, may take advantage of another circumstance which has been observed in the economy of these creatures, *i.e.*, that if disturbed when changing their skins, they become unable to extricate themselves, and die in consequence. Thus if the time of their appearance be carefully noticed, and if it is calculated that in about a week, or nearly that period, the caterpillars change their skins for the first time, it is obvious that any plan which may be adopted for ridding the fields of these unwelcome visitants, will be more likely to meet with success at that time, than at any other. After each moult, the caterpillars atone for the short period of inaction by feeding in a most voracious manner, so that fatal attacks on the crop may be expected at that time.

As the swallows are serviceable in reducing the number of the saw-flies on their first appearance, so do the rooks perform an important part in destroying the caterpillars. A careful observer of the crops during the ravages of the black caterpillar, tells us that a large piece of turnips, lying in an open field, had escaped in a remarkable manner; it lay near a rookery, and was a general rendezvous for these birds, so that the field was often covered with them. We trust that this fact will not pass unnoticed among our agricultural friends, but will lead to the encouragement of rook-building, and prevent the destruction of the young birds. The mischief done by rooks is not to be compared to the good they effect in keeping insects and caterpillars of various kinds in check.

Of the various means employed to destroy the caterpillar, that which has become the most generally useful, and indeed we may say universally successful, is the employment of a sufficient number of young ducks. They are naturally very fond of worms and caterpillars, and therefore, when turned into a field where such an abundant repast is spread out before them, they enter upon their work with hearty good-will, often to the entire saving of the crop; and even when one part of the field has been nearly destroyed, the remaining part has been restored to comparative health and prosperity by the aid of these valuable assistants. It would be wise in the farmer, however, not to allow the caterpillar to remain long before the ducks are turned in. If the evil is taken in time, it may be completely counteracted. We are told that on two farms in Norfolk nearly four hundred ducks were employed at one time. Where such large numbers are employed, it is recommended that they be formed into detachments of not more than one hundred, each detachment being attended by a boy or girl, to go before them with a long light pole or willow-rod to brush the caterpillars off the leaves, as well as to drive the birds to water and to rest three or four times a day. The ducks must be driven home at night, and fed with a little barley or other grain, or so much living animal food will be injurious to them. Ducks that are from three to five weeks old are found to work the best: old ducks do not answer the purpose. If the young ducks do not take to the food the first day they will do so the second, but in general there is no difficulty in getting them to feed on the caterpillars. Poultry are said to be equally useful. A Chertsey farmer put 150 half-grown fowls into a waggon and drew it into the middle of a cankered field. The fowls were there turned loose, and quickly annihilated the caterpillars; they also rendered the same service on an adjoining farm immediately after. We cannot say that we should greatly relish the eggs or flesh of fowls that might be employed on this service; but where such important interests are concerned it is not wise to be fastidious. Pigs are also said to

destroy the black caterpillar to a very great extent, and without doing any injury to the crop.

Other means which have in some cases been successful, while in others they have failed, are the following: strewing lime-dust or powdered chalk over the attacked portion of a field;—passing a heavy roller over the field, (a practice objected to because at the period of the caterpillars' greatest ravages the turnip crop is too far advanced to be rolled without injury;)—sweeping the crop several times with a cart-rope, performed most effectively on the evening of a wet day;—lashing some branches of green furze to an axle-tree connecting two wheels, so that the turnips may be well brushed without being uprooted;—drawing a hurdle bushed with smooth boughs down the rows for a similar purpose;—brushing the crop with elder boughs, which by some are supposed to possess peculiar virtues;—digging a trench between the infected part of a field, and that which had not been attacked. Hand-picking may be mentioned last, but not as being the least effectual. Where the caterpillars are very numerous, they may be brushed off into baskets or sieves; otherwise pints or smaller pots are suitable for collecting them.

We conclude our notice of this caterpillar with an important remark of Mr. Curtis:—

Whilst any attempts are making to diminish or to extirpate the caterpillars, the turnips should not be touched with the hoe; few of the larvæ are killed by the operation, and as their food is thereby reduced possibly one-half, the remainder with more speed and greater certainty falls a sacrifice to their ravages; moreover hoeing, by loosening and refreshing the earth, renders it more agreeable and better suited to receive the full-grown larvæ, when they are led by instinct to bury themselves; but as soon as the caterpillars have disappeared, the hoes may be set to work with great advantage where the crop is only partially injured, for then it will disturb and destroy multitudes of those that have entered the earth: and if this could be immediately followed by throwing salt and water from a water-cart over the crop, it would have a most beneficial influence, and this could be effected without much difficulty or detriment where the turnips are drilled in, and the same liquid, or even common water, if thus applied the instant the saw-flies make their appearance, would drive them away also, as such a state of the plants is not adapted to the deposition of the eggs; and the saw-flies themselves, although from their polished surface, the pubescence which clothes some of their members, and probably from an oily exudation, they can easily recover when they fall into pure water and escape from its surface, yet when they are forcibly washed off the plants, and get entangled with the soil, as lime, clay, or any other earthy matter, especially in cold weather, the greater portion of them would be rendered incapable of doing further mischief.

Lo! o'er the grave where her loved infant sleeps,
In silent woe the mother bends, and weeps:
Blame not her grief, nor check the tears that fall,
Chastised by patience, at affection's call;
While Faith, who sees, in realms beyond the sky,
The things invisible to mortal eye,
Breathes to the sainted babe this heaven-taught strain,
"To thee 'twere loss to live, to die is gain."

O BLIND to each indulgent gift
Of Power, supremely wise
Who fancy happiness in aught,
That Providence denies!
Vain is alike the joy we seek,
And vain what we possess,
Unless harmonious Reason tunes
The passions into peace.
To temperate bounds, to few desires,
Is happiness confined;
And deaf to folly's noise, attends
The music of the mind.—MRS. CARTER.

THE CONTEMPLATION OF HEAVEN WEANS THE AFFECTION FROM EARTH.

COMPARED with the enjoyments of the blessed, how insignificant is the happiness which this world can bestow. All the constituents of happiness in this life are imperfect, and mingled more or less with circumstances of painful compensation.

I would not wish to depreciate the rational pleasures of our earthly existence, nor to abate those feelings of content, and cheerfulness, and joyousness, and innocent delight, wherewith I believe it to be the will of God that we should partake in the temporal and earthly blessings with which it hath pleased him to surround us. "He hath not left himself without witness" to his loving-kindness, as well as to his power, "in that he doeth good, and giveth us rain from heaven and fruitful seasons, filling our hearts with food and gladness." And the creatures of God are good, if they be received with thanksgiving, and with "trust in the living God, who giveth us all things richly to enjoy."

Of the things, indeed, which constitute merely worldly enjoyment, "the good things," of the men of the world, many have but small pretensions to be accounted really good. But whatever be the pleasurable circumstances of the best sources of earthly enjoyment, they are accompanied by a large admixture of different ingredients. We need no voice from heaven to teach us, what the experience of all must notice, and the hearts of all must feel, that "man is born to trouble as the sparks fly upward;" that the fairest and brighest scene of his existence is liable to be overclouded with the cares of this world; with perplexity, and anxiety, and fears, and sorrows, and disappointments, and mortifications, and distresses, and diseases, and the loss of his nearest kinsmen, and his dearest friends, and of all other things which make life enjoyable. But the happiness of the blessed is free from all these occasions of alloy. Of that state there is no evil to disturb the serenity and the delight. "God hath wiped away all tears from their eyes; and there shall be no more sorrow, nor crying, neither shall there be any more pain."

Nor, again, do we need a heavenly revelation to teach us, that "man that is born of a woman," as he is "full of trouble," so also is he "short of days;" that he "cometh forth like a flower, and is cut down; he fleeth also as a shadow, and continueth not." However pure from interruption, however complete in its enjoyment, we may suppose the fairest condition of earthly existence, it is *brief* and *transitory* withal. The most splendid crown which this world can bestow is after all "corruptible:" no better than the chaplet of wild olive or parsley, which encircled the brows of the victorious champion at the Olympic or the Isthmian games; the transient pride and ornament of a day. But the Christian's crown is a "crown of life," as well "of glory:" incorruptible, unperishable, and that fadeth not away, incapable of decay, ever-flourishing, "eternal in the heavens."

How do all earthly endowments sink into comparative insignificance and worthlessness, when thus considered! Behold the noblest, the strongest, the most powerful, the most prosperous, the wealthiest, the loveliest, the most beloved and admired, hitherto the most exempt from suffering, the most abounding in enjoyment and delight, among the children of men; behold him bidding at length a farewell, an everlasting farewell, to all his earthly sources of enjoyment, "making his bed in darkness, and saying to corruption, Thou art my father; and to the worm, Thou art my mother and my sister:" and then cast up your eyes above, and see heaven opened; and contemplate those whose names are written in the Lamb's book of life, "clothed with incorruption and immortality;" and remember how of them it has been said that "they cannot die any more," for "there shall be no more death;" and what argument can succeed in persuading you, if this contemplation shall fail to persuade you, to form a right estimate of the comparative value of heavenly and of earthly things; and to "set your affection upon, and to seek after the things not in earth but in heaven."—BISHOP MANT'S *Happiness of the Blessed.*

No labour shall be thought too great for the searcher after truth.—BISHOP HOPKINS.

THE gifts of God are to be enjoyed, when the Giver is remembered.—WALTER SCOTT.

THOUGHTS FOR THE CITY.

OUT on the city's hum!
My spirit would flee from the haunts of men,
To where the woodland and leafy glen
Are eloquently dumb.

These dull brick walls which span
My daily walks, and which shut me in;
These crowded streets with their busy din—
They tell too much of man.

Oh! for those dear wild flowers,
Which in the meadows so brightly grew,
Where the honey-bee and blithe bird flew
That gladdened boyhood's hours.

Out on these chains of flesh!
Binding the pilgrim, who fain would roam
To where kind Nature hath made her home,
In bowers so green and fresh.

But is not Nature here?
From these troubled scenes look up and view
The orb of day, through the firmament blue,
Pursue his bright career.

Or, when the night-dews fall,
Go watch the moon, with her gentle glance
Flitting over that clear expanse,
Her own broad star-lit hall.

Mortal the earth may mar,
And blot out its beauties one by one;
But he cannot dim the fadeless sun,
Or quench a single star.

And o'er the dusky town
The greater light that ruleth the day,
And the heavenly host in their night array,
Look gloriously down.

So, 'mid the hollow mirth,
The din and strife of the crowded mart,
May we ever lift up the eye and heart
To scenes above the earth.

Blest thought, so kindly given,
That though he toil with his boasted might,
Man cannot shut from his brother's sight
The things and thoughts of heaven.—WINSLOW.

BURIAL IN PORTUGAL.

ONE evening the sharp ring of the bell summoned me to the balcony, but I at once saw that there was something unusual in the procession; the number of persons was greater, and they were travelling at a jog-trot, very inimical to the interests of charity. As they came nearer, I saw by the fierce light flung by torches, of which there were six or eight, that four of the men bore some burden; and looking more attentively, I soon discovered its nature—it was a corpse, stretched on its back in a long wooden tray, precisely similar to those made use of in England by butchers; the dead man was in full costume, evidently dressed in his best; but what excited the greatest horror in me, was the fact that the tray was far too short for the body; and the head, the arms, and the legs, were hanging over it, and jerking up and down as the bearers carelessly scrambled along the roughly paved streets.

The process of interment, I was told by an officer who had the curiosity to leave our house and follow the procession, was as summary as the journey to the grave; the "narrow bed" was also a frightfully shallow one, the face of the corpse being not more than three inches lower than the surface of the earth. Into this mis-shapen grave he was flung without the least ceremony; a slight covering of soil was scattered over him, and then came the last horror of this revolting, this humiliating mode of interment; the sexton jumped upon the body, and with a heavy wooden rammer literally reduced it to a jelly! The reason given to my friend for this savage proceeding was, that it would prevent the dogs from tearing up the body: and this because they lacked the energy to bestow upon a fellow christian a coffin and a grave! The beautiful monastery of St. Jeronymo is a favourite burial-place for infants; I cannot now charge my memory with the reason of this preference, but I know that some superstition is attached to it. It is a very common thing to meet four or five *cejas* (a carriage which resembles a cabriolet travestied) on the same morning, each holding a lady and gentleman in full dress, and a little wooden tray containing a dead infant gaily attired in flowers and coloured ribbons. These *cejas* drive to the monastery, the occupants alight, remain for a time in prayer before the high altar, and then quietly taking the child out of the tray they lay it down on the marble pavement of the chapel wherever they please, leaving money beside it to remunerate the monks for the trouble of its burial; and so depart without a tear, or that "longing, lingering look" which might create for after years another, later memory of the early lost! And yet it is, I was told, generally the parents who thus bear their children to their cold resting-place in that proud pile. The little creatures, clad in their revolting finery, have precisely the appearance of waxen images; and a friend of ours, who one day walked into the chapel, and saw as many as six of these poor little beings on the pavement, actually lifted one to look at it: he said afterwards that he never experienced so sickly a sensation as he did when he discovered it was a dead child! As I knew the nature of these gaudy deposits, I never ventured sufficiently near to them to inspect the materials of their showy apparel; and was very much surprised, on expostulating with a Portuguese lady on the folly of burying infants in such costly clothes, by her assuring me that all this finery cost no more than six *vintem* (sevenpence halfpenny), and was invariably purchased at a depôt for such articles, as it made the *meninos* (little children) look very pretty.—MISS PARDOE'S *Traits of Portugal.*

MANUFACTURE OF MOSAIC AT ROME.

LEAVING St. Peter's, we walked to see the manufactory of mosaic. It differs from the pietra-dura in this, that while stones are employed in the Florentine mosaic, the material used in the Roman is a composition of lead, tin, and glass, smelted and mixed with colours: of this there are said to be eighteen thousand shades. We walked through a long room lined with cases, in which this is arranged, to the workshops. Here we watched the progress of the mosaic manufacture for some time. In an iron frame is placed a stone, the size of the intended picture: and on it is spread, inch by inch, a kind of mastic, which when dry becomes as hard as flint. While yet soft, the workman inserts in it the small pieces of which the mosaic is formed, cut and ground with the utmost nicety to the shape required. The time necessary for the completion of these pictures is of course great, and the expense proportionate, some costing nearly 5000*l.*

When the copyist has faithfully executed his task, there is still much to be done: the mosaic is laid on a table, and the interstices are filled with a peculiar sort of wax, prepared for this purpose; the surface is then ground perfectly smooth, and the whole polished. The subjects generally chosen are the finest pictures of the old masters; and it is wonderful to see the beautiful copies produced by such mechanical means.—*Letters from Italy.*

DURING the reign of Peter the First, Czar of Russia, it was the custom of that tyrant to punish those nobles who offended him, by an imperial order that they should become *fools:* from which moment the unfortunate victim, however endowed with intellect, instantly became the laughing-stock of the whole court; he had the privilege of saying everything he chose, at the peril, however, of being kicked or horsewhipped, without daring to offer any sort of retaliation; everything he did was ridiculed, his complaints treated as jests, and his sarcasms sneered at and commented on, as marvellous proofs of understanding in a fool. The Empress Anne surpassed this abominable cruelty, but sometimes mingled in her practices so much of oddity that it was impossible not to be entertained. Once she decreed that a certain Prince G—— should become a hen, to punish him for some trifling misdemeanor; and for this purpose she ordered a large basket, stuffed with straw, and hollowed into a nest, with a quantity of eggs inside, to be placed conspicuously in one of the principal rooms at court. The prince was condemned, on pain of death, to sit upon this nest, and render himself to the last degree ridiculous by imitating the cackling of a hen.—*Memoirs of the Princess Daschkaw.*

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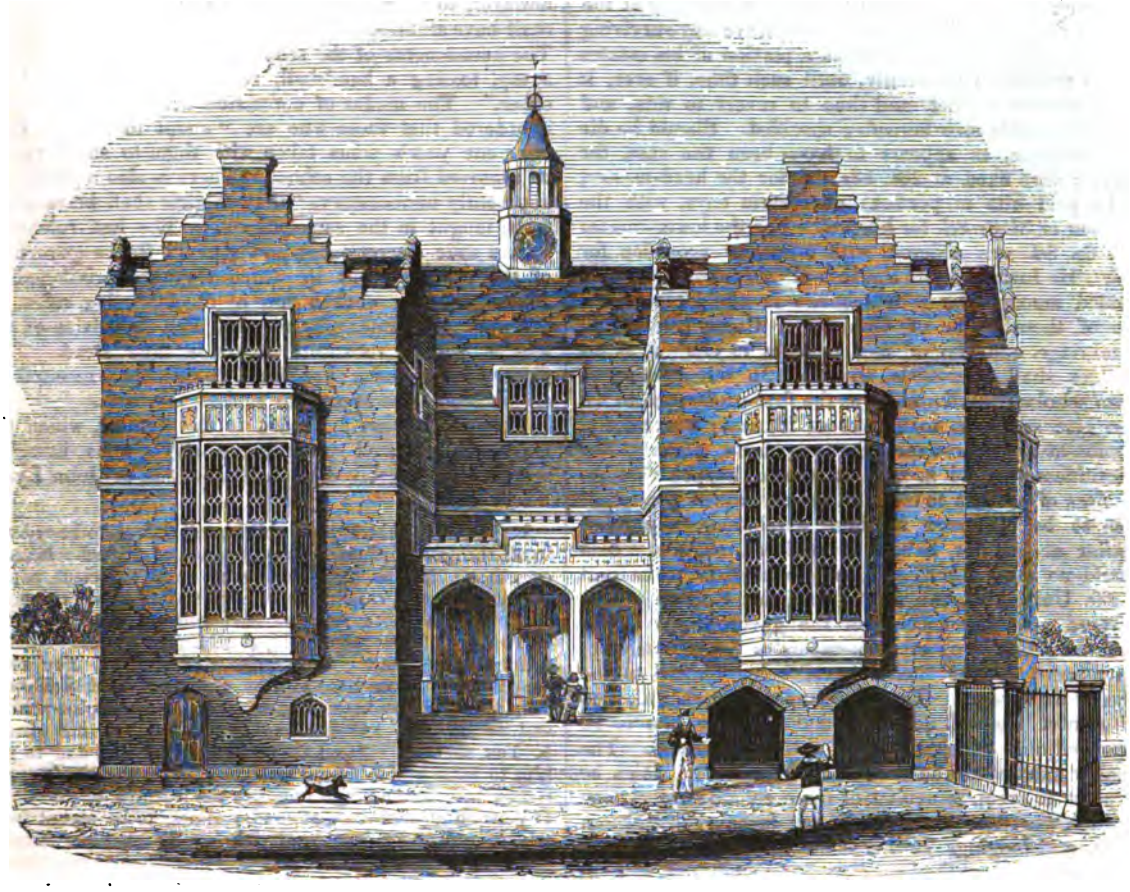
HISTORICAL NOTICE OF HARROW SCHOOL.



THE SCHOOL-HOUSE, FROM THE PLAY-GROUND.

I.

HARROW ON THE HILL is one of the most celebrated and frequented public seminaries of classical learning in the kingdom. From its elevated situation it commands a series of rich and varied prospects almost unrivalled. The hill on which the village of Harrow is built, rises singly out of an extensive fertile vale: the form of this hill is remarkable—the brow is considerably depressed in the centre, and rises into two very conspicuous eminences at the extremes. The old approach from London ascends the more southerly of these eminences. That towards the north is crowned by the church, the spire of which is a very prominent object through Middlesex, and some of the counties adjoining.

The village, which is chiefly supported by the school, lies immediately below the church, from which the street descends in a southerly direction. The school is on the same eminence with the church, and a little below it to the south. It was founded in the year 1571, by JOHN LYON, a wealthy yeoman of Harrow, who on the 19th of February obtained Letters Patent, and a Royal Charter from Queen Elizabeth, recognising his foundation, and certain statutes which he was empowered to draw up for the regulation of his establishment; at the same time constituting six trustees of his property a body corporate, themselves and their successors, by election among themselves, for ever, under the title of "The Keepers and Governors of the Schoole called, and to bee called THE FREE GRAMMAR SCHOOLE OF JOHN LYON, in the village of Harrow upon the Hill, in the Countye of Middlesex." The charter conferred upon the governors the rights usually attached to bodies corporate, and guaranteed such dispositions as the founder should subsequently make. It also provided that in case of death or default of any of the six governors, the Bishop of London was to have the power of appointing fit persons within the parish. The governors were also empowered to choose a proper master or usher of the said school.

Nearly twenty years elapsed after the date of this charter before any building was erected, or statutes propounded for the future government of the school; but on the 18th January, 1590, the pious and benevolent founder, two years before his death, issued a very curious document containing his "orders, statutes, and rules," for the government of his school, the most material points of which are contained in the following abstract.

He requires the governors to meet annually in the school-house, even before his death, should such a

building be completed before that event; but if not so erected, they are to meet within a short space after his death, and that of Johan his wife. He proceeds to direct the governors to select two of their body to act as surveyors; he specifies their duties, and enters into a minute detail of the manner in which the accounts shall be kept and preserved. They are next required, within one half year after the decease of himself, and his wife, to proceed to the election of a schoolmaster and usher; the former to be "on no account below the degree of Master of Arts;" or the latter "under that of a Bachelor of Arts." The stipends of these masters were left to depend, in some measure, on the chance, whether at the time of the testator's death he should leave any surviving issue; should the event be such, a portion of his estates was to remain in his family, until such time, if ever, it might become extinct, and then to revert to this, and other charitable uses hereafter specified. Should he die without issue, as appears to have been the case, the salaries were fixed at 26*l.* 13*s.* 4*d.* for the head-master, to be paid him in portions on certain days, with the addition of 3*l.* 6*s.* 8*d.* for his fuel. For the lower-master 13*l.* 6*s.* 8*d.* was ordered, with a similar provision for fuel. He further allots the sum of 20*l.* annually, to be divided among four poor scholars in the Universities, two of them to be of Gonvile, or Caius College, in Cambridge, and two of such colleges in Oxford, as his trustees shall afterwards appoint. In the election of these scholars Mr. Lyon gives the first preference to his own kin; secondly, to natives of Harrow; and thirdly, to such as are "most meet for towardness, poverty, and painfulness." And in case it should happen that no scholars of his own foundation should possess the requisites to be preferred to these exhibitions, any other scholar at Harrow School is declared eligible. And should no scholar whatever be produced fit to be sent to the University, the master of Caius College is empowered with the consent of the governors to confer these emoluments on other members of his own society; the time of holding such stipend being limited to the term of eight years. To each of the governors is allotted the sum of 13*s.* 4*d.* annually, and a similar sum to be expended on a dinner for them at their meetings. The founder proceeds to describe the school-house, which he purposes to erect, to consist of three cellars for fuel, one for each master, and one for the scholars; a school-room above, and lodgings in the same building for the two masters; ordering that in case he should die without completing this design, 300*l.* should be levied on his estates, for that purpose, by the governors, immediately after his decease. The trustees are enjoined on the occurrence of vacancies in their own body to elect successors within twenty days; and in case of disagreements between them, the Archbishop of Canterbury for the time being is nominated a visitor to decide all questions and controversies.

Mr. Lyon also prepared rules to be observed in the ordering of the school. They are drawn up with precision, and express clearly the founder's intention with respect to the system to be pursued at his school. They direct that—

The schoolmaster may receive, over and above the youth of the inhabitants within the parish, so many foreigners as the whole number may be well taught and applied, and the place can conveniently contain, by the judgment and discretion of the governors. And of the foreigners, he may take such stipends and wages as he can get, except that they be of the kindred of John Lyon the founder; so that he take pains with all indifferently, as well of the parish as foreigners, as well of poor as of rich; but the discretion of the governors shall be looked to that he do.

The rules which regulate the hours of attendance require that prayers shall be distinctly read by some scholar, appointed by the master, the first thing in the morning after the scholars are assembled, and the last thing before they depart. There are nine clauses which detail the books that shall be read, and the exercises which shall be performed by the boys, as also their divisions into classes. The books enumerated include some of the best Latin verse and prose writers; some of the Greek orators and historians, but no Greek poet except Hesiod. Some of the books mentioned have long since become obsolete, either as vehicles of instruction or amusement. Latin verses and themes are enjoined as the written exercises, and the scholars are required to be initiated in the elements of Latin versification very early. No English book is mentioned except the prayers of the Church of England, which are, however, to be repeated in Latin as soon as the scholars shall have attained sufficient proficiency in that language. The amusements of the scholars are limited "to driving a top, tossing a hand-ball, running, shooting, and no other." The modes of correction are specified; and it is ordered that those who are "unapt to learn," shall after one year's pains taken with them to small profit, be removed from the school. There is also a provision, apparently unnecessary, "that no girls shall be received to be taught in the same school." The last rule conveys a wide discretionary power to all future governors of the establishment by which they are privileged to amend, alter, or abolish, any of the foregoing rules, as the change of times may require, with the advice of the master, and to substitute others in their stead. This discretionary power has been frequently exercised to accommodate the system to modern manners.

Five articles are appended to the statutes, which the master is required to recite to all persons bringing scholars to be received on the foundation of John Lyon. These are:—

1. You shall submit your child in all things, to be ordered in all things according to the discretion of the schoolmaster or usher. 2. You shall find your child sufficient paper, ink, pens, books, candles for winter, and all other things at any time requisite for the maintanance of his study. 3. You shall allow your child, at all times, bow-shafts, bow-strings, and a bracer, to exercise shooting. 4. You shall see diligently, from time to time, that your child shall keep duly the ordinary hours and times in coming to the school, and in diligent keeping and continuing of his study. 5. You shall be content to receive your child, and to put him to some profitable occupation, if, after one year's experience, he shall be found unapt to the learning of grammar. If your child shall use, at sundry times, to be absent from school, unless by reason of sickness, he shall be utterly banished from the school.

Such is the foundation of John Lyon, but of John Lyon himself little is known. He appears to have acquired his property chiefly by his own industry, and to have devoted a portion of it annually, to the education of poor children. He died in 1592, and is buried in the nave of the church of Harrow. On the gravestone is a figure of the deceased in brass, and the following inscription:—

Here lyeth buried the bodye of John Lyon, late of Preston in this parish, yeoman, deceased the 11th day of October, in the yeare of our Lord 1592, who hath founded a free grammar-schoole in the parish, to have continuance for ever; and for maintanance thereof, and for releyffe of the poore, and of some poore schollers in the universitye, repairinge of highwayes, and other good and charitable uses, hath made conveyance of lands of good value to a corporation granted for that purpose. Prayers be to the Authour of all goodness, who makes us myndful to follow his good example.

This neglected monument continued to be the only memorial of the founder, until the year 1813, when some noblemen and gentlemen, who had been educated at Harrow, subscribed for the erection of a monument, to which Dr. Parr contributed an eloquent Latin inscription.

Up to a comparatively recent period, the school buildings were for the most part of a very homely character. The school-house was completed about three

years after the founder's decease; it was a substantial and somewhat lofty brick building, standing in a gravel court, nearly at the summit of the hill. On the roof was a lion rampant, supporting a vane, an armorial device of the founder, or rebus of his name. The old school-room has been described thus:—

It is about fifty feet in length, by twenty-one wide, and the height of very good proportion to the area. The walls are wainscoted with oak to about one half of their elevation, above which are large heavy square windows, such as are not unfrequently seen in the better sort of yeomen's houses built about the time of Elizabeth, where the compartments are formed not of stone but thick timber. The height of the windows causes a gloomy appearance in the room, which has indeed little claim to attention, but the uses to which it is consecrated. Not only is the oaken wainscot covered with the carved names of some generations, but even the plastered walls above, are smeared with less durable memorials of their names and dates. It would seem that these simple records are held in greater veneration here than elsewhere, as many years must have elapsed since the interior of the building was profaned by paint or whitewash.

The time at which the masters ceased to occupy the rooms, originally intended for them, is not well ascertained; they must have been very inconvenient, and were soon relinquished for a more commodious abode. In 1670, some allowance was made to the master by the governors, for a house. In 1672, a house belonging to the trust was finally made over to him and his successors. This house is situated nearly in the middle of the small street of the village, on the eastern side; but it has received so many additions and alterations, under its various possessors, as to retain few or no traces of its original form. The Rev. Dr. Butler, during his head mastership, is said to have expended no less than 10,000*l.*, on this house. In October, 1838, the buildings were injured by a destructive fire; the loss was considerable, but insured, it is said, to the full amount. From the gardens of the master's house, and the apartments facing them, a most magnificent view is obtained, which includes the spires and elevated buildings of the metropolis. On the entrance porch to the master's house are two shields, the one bearing the lion rampant; the other two arrows crossed, a very old device of this school, originating in the practice of archery here. The same devices are repeated in the interior of the dwelling. The cross arrows are stamped on the exterior of all books given as prizes to the scholars.

MARRIAGE OF RUSSIAN VILLAGERS.

You must conjure up a church encircled by bearded villagers clad in sheep skins, their legs twisted round with straw, and gauntlets on their hands. While they wait the arrival of the bride and bridegroom, they interchange their usual demonstrations of good will, flouncing their arms round one another's shoulders, and beard to beard, each clumsy neighbour kissing the other with the most perfect regard. As the groundwork of this picture is snow, you may see them break off from these embraces, to whack their hands against their leathern sides, or fumble for their noses; or to leave the print of their sculls on the ground; crossing themselves at the same time with all their might and main, whenever it occurs to them that they are standing before a church. A dozen kibitkas, like large cradles, slide on their sledges up towards the porch, where the priest is placed to receive them, arrayed in his epitrachelion; when out *flump* the bride and bridegroom, trundling under the weight of their clothes, and followed by every relative they have on the face of the earth, except the father and mother of the bride, who stay at home to lament her loss. You may now fancy a forest in a storm; so many different coloured beards, wild and grisly, wave up and down, and so many arms fly in every direction, in all the energy of bowing, crossing, and hurrying towards the porch.—*Memoirs of the Princess Daschkaw.*

KING HENRY THE EIGHTH.

Whenever the council of the senate of Venice sent an ambassador to a foreign country in former times, they ordered him to study, and report to them upon the circumstances of the state to which he was sent, its geographical condition, population, wealth, and various relations, with all that he could learn of the personal characters, not only of the Sovereign, but of the principal members of his court.

The following was the description which Sebastiano Giustiniani, the Venetian resident in England in 1519, gave to the council of the Pregati, of the person and manners of King Henry the Eighth.

"His majesty is about twenty-nine years of age, as handsome as nature could form him, above any other Christian prince, handsomer by far than the king of France. He is exceeding fair; and as well proportioned in every part as it is possible. When he learned that the king of France wore a beard, he allowed his also to grow; which being somewhat red, has at present the appearance of being of gold. He is an excellent musician and composer; an admirable horseman and wrestler. He possesses a good knowledge of the French, Latin, and Spanish languages; and is very devout. On the days in which he goes to the chace he hears mass three times; but on other days he goes as often as five times. He has every day service in the queen's chamber at vespers and compline. He is uncommonly fond of the chace, and never indulges in this diversion without tiring eight or ten horses. These he has stationed at the different places where he purposes to stop. When one is fatigued he mounts another; and by the time he returns home they have been all used. He takes great delight in bowling, and it is the pleasantest sight in the world to see him engaged in this exercise, with his fair skin covered with a beautifully fine shirt. He plays with the hostages of France, and it is said that they sport from six to eight thousand ducats in a day. Affable and benign, he offends no one. He has often said to the ambassador, he wished that every one was content with his condition, 'We are content with our Islands.' He is very desirous of preserving peace; and possesses great wealth."

This seems the character to which Henry the Eighth was really entitled in his earlier years; and it is corroborated nowhere more frequently than in the letters of Erasmus and his friends. The business of the divorce seems to have first roused the more angry passions of his nature. Wolsey perceived and felt them, as we learn from the description of his master, which he gave in his last moments to Sir William Kyngeston.

"He is sure a prince of a royal courage, and hath a princely heart; and rather than he will either miss or want any part of his will or appetite, he will put the loss of one half of his realm in danger. For I assure you I have often kneeled before him in his privy chamber on my knees, the space of an hour or two, to persuade him from his will and appetite; but I could never bring to pass to dissuade him him therefrom. Therefore, Master Kingston, if it chance hereafter you to be one of his privy counsell, as for your wisdom and other qualities ye are meet to be, I warn you to be well advised and assured what matters ye put in his head, for ye shall never put it out again."—Ellis's *Original Letters.*

Taste not from Fame's uncertain fountain
The peace-destroying streams that flow,
Nor from Ambition's dangerous mountain
Look down upon the world below.

The princely Pine, on hills exalted,
Whose lofty branches cleave the sky,
By winds long braved, at last assaulted,
Is headlong whirled in dust to lie;

Whilst the mild Rose, more safely growing,
Low in its unaspiring vale,
Amidst Retirement's shelter blowing,
Exchanges sweets with every gale.

J. G. Cooper.

EASY LESSONS ON REASONING.

Lesson IX.

§ 1. We have now gone thro', in the way of a slight sketch, the *Analysis* of Reasoning. To analyse (as has been already explained) means to "take to pieces," so as to resolve anything into its *elements*, [or component-parts.] Thus a Chemist is said to "analyse" any compound substance that is before him, when he exhibits separately the simpler substances it is composed of, and resolves these again into their elements. And when, again, he *combines* these elements into their compounds, and those again, into further compounds—thus reversing the former process, (which is called the "analytical") he is said to be proceeding *synthetically*: the word "Synthesis"—which signifies "putting together,"—being the opposite of "Analysis."

Accordingly, it has been shown in the foregoing Lessons that every train of Argument being capable of being exhibited in a series of Syllogisms, a Syllogism contains three Propositions, and a Proposition, two Terms. And it has been shewn how "Common-terms" (which are indispensable for Reasoning) are obtained by means of Abstraction from Individual objects.

This analytical method is the best suited for the *first introduction* of any study to a learner; because he there sees, from the very beginning, the practical application of whatever is taught. But the opposite method—the synthetical—is the more convenient for *storing up* in the mind all that is to be remembered.

We shall therefore now go over great part of the same ground in a reversed order: merely *referring* to such things as have been already taught, and adding such further rules, and explanations of additional technical terms, as may be needed.

§ 2. The act of the mind in taking in the meaning of a Term, is called, in technical language, the act [or "operation"] of "Simple-apprehension;" that is, "*mere*-apprehension, [or "apprehension-only."] When a Proposition is stated—which consists, as we have seen, of two terms, one of which is affirmed or denied of the other,—the "operation" [or "act"] of the mind is technically called "Judgment." And the two Terms are described in technical language, as "compared" together, and as "agreeing" or as "disagreeing," according as you *affirm*, or *deny*, the one, of the other.

When from certain Judgments you proceed to another Judgment resulting from them,—that is, when you *infer* [or deduce] a Proposition from certain other Propositions—this "operation" is called "Reasoning," or "Argumentation," or (in the language of some writers) "Discourse."

And these are all the mental operations that we are at present concerned with.

Each of these Operations is liable to a corresponding defect; namely, "Simple-apprehension" to *indistinctness*, "Judgment," to *falsity*, and "Reasoning" to *inconclusiveness;* [or fallaciousness.] And it is desirable to avail ourselves of any rules and cautions as to the employment of language, that may serve to guard against these defects, to the utmost degree that is possible:—in other words, to guard, by the best rules we can frame, against *Terms* not conveying a distinct meaning;—against *false Propositions* mistaken for true;—and against *apparent-arguments* [or "Fallacies;" or "Sophisms"] which are in reality *inconclusive*, tho' likely to be mistaken for real [valid] arguments.

And such a System of Rules*, based on a scientific view of the Reasoning-process, and of everything connected with it, is what the ancient Greeks, among whom it originated, called the "Dialectic-art;" from a word signifying to "discourse on," or "discuss" a subject.

* You are to observe that a Science, properly, consists of *general truths* that are to be known: an Art, of *practical rules* for something that is to be done.

§ 3. You are to observe however two important distinctions in reference to the above-mentioned defects: 1st you are to remember that which *is*, *really*, a Term, may be *indistinctly* apprehended by the person employing it, or by his hearer; and so also, a Proposition which is *false*, is not the less a *real Proposition:* but, on the other hand, any expression or statement which does not really *prove* anything, is *not*, *really*, an Argument at all, tho' it may be brought forward and passed off as such.

2dly it is to be remembered that (as it is evident from what has been just said) no rules can be devised that will *equally* guard against *all three* of the above-mentioned defects.

To arrive at a distinct apprehension of everything that may be expressed by any Term whatever, and again, to ascertain the truth or falsity of every conceivable Proposition, is manifestly beyond the reach of any system of rules. But on the other hand, it *is* possible to exhibit any pretended Argument whatever in such a form as to be able to *pronounce decisively* on its validity or its fallaciousness.

So that the *last* of the three defects alluded to (tho' not, the two former) may be *directly* and *completely* obviated by the application of suitable rules. But the other two defects can be guarded against (as will presently be shewn) only *indirectly*, and to a certain degree.

In other words, rules may be framed that will enable us to decide, what is, or is not, *really* a "Term,"—really, a "Proposition,"—or really, an "Argument:" and to do this, is to guard *completely* against the defect of *inconclusiveness;* since nothing that is inconclusive, is, really, an "Argument;" though that may be *really a* "Term," of which you do not *distinctly* apprehend the meaning; and that which is *really a* "*Proposition*," may be a *false* Proposition.

§ 4. When two Terms are brought together (or "compared," as some express it) as Subject and Predicate of a Proposition, they are (as was above remarked) described in technical language, as "agreeing" or "disagreeing," according as the one is *affirmed* or *denied*, of the other.

This "agreement," however, does not (you are to observe) mean *coincidence;* [or that the two terms are "equivalent"] for when I say "Every X is Y," or "Every Sheep is a ruminant-animal," this does not mean "X is *equivalent* to Y"; [or "X" and "Y" are terms of *equal extent*] indeed we know that "ruminant-animal" is in fact a term of greater extent than "Sheep"; including several other species besides. We only mean to assert that it is a Class [or Predicable] *comprehending under it*, at least, the term "Sheep"; but whether it does or does not comprehend anything else besides, the proposition before us *does not declare*.

Hence it is that (as was formerly explained) the Predicate of an *Affirmative*-proposition is considered as *undistributed:* the Subject being compared with *part at least* of the Predicate, and asserted to "agree" with it; but whether there be, or be not, any other part of the Predicate which does *not* agree with that Subject, is not *declared* in the proposition itself.

There are, it is to be observed, two *apparent* exceptions to this rule; 1st the case of a Proposition which gives a *Definition* of anything; as when I say "a triangle is a three-sided figure"; which would not be a correct *definition*, unless it were also true that "a three-sided figure is a triangle: and 2ly by the case of an affirmative-Proposition where both terms are *singular*, and denote of course one and the same Individual; as "Ishmael was the first-born of Abraham."

In both these cases the Subject and Predicate are, in each proposition, what are called "convertible" [or "equivalent"] terms. But then, to assert or imply both that a certain affirmative-proposition is *true*, and *also* that its terms are *equivalent*, is to

make (as was formerly remarked) not merely *one*, but *two* assertions.

Now if I am understood to mean not only that it is true that "a triangle is a three-sided figure" but also that *this is the definition* of a "triangle," then, I am understood as making two assertions; that not only "every triangle is a three-sided figure," but also that "every three-sided figure is a triangle." But this is understood not from the *Proposition* itself, looking to the *form of expression alone*, but from what we know, or think, respecting the *sense of the Terms* themselves, or from what we suppose the speaker to have intended by those Terms. For, all that is implied in the *mere form* of an affirmative-proposition,—as "X is Y"—is simply that *some part at least* of the term "Y" (whatever that Symbol may stand for,) is pronounced to agree with the term "X."

§ 5. And a like explanation will apply in the other case also. If I understand from the *sense of the terms* in some affirmative-proposition, that the Subject and the Predicate are each a Singular-term, (denoting, of course, one and the same individual)—as "Ishmael was the first-born of Abraham," then I understand, as implied by the *meaning of the words* (tho' not, by the *form* of the *Proposition*) *another* proposition also; namely, that "the first-born of Abraham was Ishmael." In short, it is from my knowledge of the sense of the terms themselves that I understand them to be "convertible" [or equivalent] terms. For you may observe that a Singular-term must, from its own nature, correspond to a *Common term taken universally*, [or "*distributed*"] inasmuch as it *cannot but* stand for the *whole* (not merely some part) of that which it denotes.

In such cases as the above then, that which is *expressed as one* proposition, is so understood from the meaning of the words as in reality to *imply two*. And there is therefore no real exception to the rule, that an Affirmative-proposition does not, *by the form of the expression*, distribute its Predicate.

§ 6. That which pronounces the *agreement* or *disagreement* of the two Terms of a Proposition [or which makes it *affirmative* or *negative*] is called, as has been above said, the "Copula." And this is always, in sense, either "is" or "is not." For every *Verb*, except what is called the "Substantive-verb" to "be," contains something more than a bare assertion of the agreement or disagreement of two terms. It always contains in it the Predicate (or part of the Predicate) also.

Thus, the proposition "it rains" (which in Latin would be expressed by the single word "pluit") is
Subj. Cop. Pred.
resolved into "Rain-is-falling;" or in some such way.
Subj.
"John owes William a pound," is resolved into "John—
Pred.
Cop.
is—owing [or indebted to] William, a pound." And so in all such cases.

Sometimes, indeed even the substantive-verb itself is both Copula and Predicate; namely where *existence* alone is affirmed or denied; as "God is;" "one of Jacob's sons is not*:" in which cases "existing" is the Predicate.

You are to observe that the Copula has in itself no relation to *time*. If therefore any other *tense* besides the *Present*, of the Substantive-verb, is used, it is to be understood as the same in sense with the *Present*, as far as the *assertion* is concerned; the difference of tense being regarded (as well as the *person* and *number*) merely as a matter of grammatical propriety: unless it be where the circumstance of *time* really does affect the sense of the proposition. And then, this circumstance is to be regarded as part of one of the *Terms*; as, "this man *was* honest;" that is, "he is one *formerly-honest*." In such a case, an emphasis, with a peculiar tone, is laid on the word "*was*."

* Gen. 42. xiii.

An *Infinitive*, you are to observe, is not a Verb, (since it can contain no affirmation or denial) but a verbal-noun-substantive. And a *Participle* again, is a verbal-adjective.

A Participle, or any other Adjective, may be made a *Predicate*, but not (by itself) a Subject of a proposition; as "this grass is green," "that grass is mown."

An Infinitive, tho' generally placed (in English) at the *end* of a sentence, is almost always (when it is by itself a Term) the *Subject*; as "I like to ride;" that is,
Sub. Pred.
"To ride" [or "riding"] is—a thing I like."

And observe that there is, in English, an Infinitive in "*ing*," the same in sound with the Participle, but different in sense. When I say "Riding" [or "to ride"] is pleasant," and again "that man is riding," in the former sentence the word "riding" is a Substantive, and is the Subject; in the latter it is an Adjective [Participle] and is the Predicate.

One Infinitive however is sometimes predicated of *another* Infinitive; as, "seeing is believing;" "not to advance is to fall back;" "to be born is not to be perfected."

§ 7. A Term may consist (as was formerly explained) of one word, or of several. And care must be taken, when you are examining a proposition, not to mistake for one of its Terms a word which tho' it *might* have been used as a Term, is, in *that proposition*, only a part of a Term. Thus, in one of the above examples, the word "pound" is not one of the Terms, but only a part of the Term "owing a pound to William." A *description* of some object will sometimes occupy a page or two, and yet be only the Predicate of a single Proposition.

You are to observe also that one single sentence will often imply what may be regarded as several distinct Propositions; each indeed implying the *truth* of the others, but having their Terms different, according as we understand the *drift*, (as it is called) or design of what is uttered: that is according to what we understand the person to be *speaking* of, (which is the Subject) and what it is that he says [predicates] of it.
1 2 3 4

Thus "He—did not—design—your—death;" may be regarded as any one of at least four different propositions. If (No 1) the word "He" be marked by emphasis in speaking, or by Italics, it will be understood as the Predicate; and the drift of the sentence will be that "whoever else may have designed your death, it was not *he*:" if the emphasis fall on No 2, the Predicate will be "designing," [or "by design"] and the drift of the sentence will be that, "tho' he may have endangered your life, it was not by *design*:" and so with the rest.

You should endeavour therefore so to express yourself as to make it clearly understood not only what is the meaning of *each word* you employ, but also what is the general *drift of the whole* sentence; in short, what is the Subject of your Proposition, and what it is that you say of it. And as far as you can, you should make this clear by the *structure* of each sentence, without resorting to the expedient of *italics* or under-scoring oftener than is unavoidable.

There is frequently a great advantage, towards such clearness, gained, by the English word "IT" in that sense in which it stands (not as the *neuter* pronoun, answering to "He" and "She," but) as the *representative of the Subject* of a Proposition, of whatever Gender or Number; so as to allow the Subject itself to be placed last; as—
Subj. Cop. Pred. Subj.
"It—is not—he—that had this design:"
or again—
Subj. Cop. Pred. Subj.
"It—is not—by design—that he did this," &c.

ORGANS OF VOICE IN BIRDS.

THE striking difference existing between the organs of voice of birds and other animals, may, perhaps, be best explained by comparing them with the organs of sound in the human species. We utter sounds, and speak through a certain tube, communicating from the mouth to the lungs, called the trachea, or windpipe, which is furnished with very beautiful contrivances for the purposes of sound. In like manner birds are provided with windpipes; but, unlike men and animals, they have a double set of instruments, if they may be so called, one at the upper, and the other at the lower end of the windpipe; and as it is in the lower part of the windpipe chiefly that the peculiar contrivance for uttering sounds is to be found, which may be compared to a clarionet, or similar musical instrument, it so happens, strange to say, that a bird might utter notes after his head was cut off. It is astonishing what powers and varieties of note this simple pipe is capable of producing. A good deal depends on the construction of the windpipe itself; and several, as in the duck tribe, are very curiously formed. It usually consists of a straight tube, of a stiff horny character, sometimes of uniform diameter throughout, at other times gradually swelling towards the middle, or with roundish enlarged cavities, as in the tufted and golden-eyed ducks, though these enlargements are more frequently at the end of the tube.

It would be needless to dwell upon the infinite variety of notes of birds; but a few of the most striking deserve notice. In this country we find indeed few peculiarities, but nevertheless there are some. Thus, everybody knows that jackdaws, starlings, and magpies, may be taught to speak words like parrots; but near a clergyman's house, in Northamptonshire, a blackbird was in the habit of crowing constantly, as accurately as a common cock, and nearly as loud. Perched upon the top of an ash-tree, it might be seen crowing away; occasionally in its natural song, but this only for a second or two; for it soon began again to crow; and when the cocks from a neighbouring poultry-yard answered it, the little bird seemed delighted, and as if it was trying to rival them in the shrillness of its note. It was supposed that it must have been bred near the spot, and learned the cry from hearing the cocks.

The goatsucker, nightjar, hawkmoth, or, as it is better known in many places, the wheel-bird, owing to its making a sound much resembling a spinning-wheel, is another bird not uncommon in this country during the summer months, frequenting heaths and commons. The best time to hear it is about dusk, when it may be cautiously approached, and discovered sitting with its head downwards, repeating, for a considerable time, its rough jarring cry. In foreign countries, however, there are birds possessing a far greater power of imitation. We need scarcely mention the mocking-bird of North America at the head of the list; so widely spread over the world is its character, not only having the power of imitating the note of every bird it hears, but also that of animals and other sounds. It can bark like a dog, mew like a cat; then all of a sudden make the exact noise of a trundling wheelbarrow; sometimes it will call the hens together by screaming like a wounded chicken; or entice the house-dog from the fireside by whistling for it in its master's well-known summons.

There is a species of crow in India (*Corvus leucophus*) which assembles in flocks of about twenty or thirty, in the recesses of forests, and whose note so exactly resembles the human voice in loud laughing, that a person, ignorant of the real cause, would fancy that a very merry party were close at hand.

There is also a species of skylark in India, whose powers of imitation are described as astonishing. One of these birds had so completely learned the wailing cry of a kite soaring in the air, that although the lark's cage was in room, and within a few feet of the listener, he could scarcely persuade himself that the cry he heard did not, in reality, proceed from a distant kite. They are taught by being carried daily to the fields and groves, in close-covered cages, and are so prized, that a fine, well instructed bird, has been known to sell for four pounds.

We have spoken of our English goatsucker; but there are many of this family never seen in our island, and far more interesting. In South America there are several sorts, whose notes are so singular, that the natives look upon them with a degree of awe and reverence, and will never kill them. They have received names from the different words they are supposed to speak, and absolutely bewilder strangers on first arriving in those parts. Thus, one of the most common will alight close by the door, and, on a person's going out, will flit, and settle a few yards before him, crying out, "Who are you? who, who are you?" Another calls out, "Work away, work away, work away!" A third, in a mournful tone, says, "Willy come go; Willy, Willy, Willy come go!" While another, which is also a very common one, is known by the name of Whip-poor-Will, from constantly repeating these words. But the most extraordinary note yet remains to be mentioned, that of the campanero, or bell-bird, found in South America, and also in Africa (*Cotinga casunculata.*) A traveller in the first-mentioned country, speaks of it as never failing to attract the attention of a passenger, at a distance of even three miles, when it may be heard tolling, like a distant church-bell. When every other bird, during the heat of the day, has ceased to sing, and all nature is hushed in midnight silence, the campanero alone is heard. Its toll sounds, then a pause for a minute, then another toll, then another pause, and then a toll, and again a pause. In Africa, two travelling missionaries have given nearly the same account, but at somewhat greater length. They were journeying onwards, in the solitude of the wilderness, when the note of the campanero fell upon their ear. "'Listen,' said my companion, 'did not you hear a church bell?' We paused, and it tolled again; and so strong was the resemblance, that we could scarcely persuade ourselves that we did not hear the low and solemn sound of a distant passing bell. When all was silent, it came at intervals upon the ear, heavy and slow, like a death-toll; all again was then silent, and then again the bell-bird's note was borne upon the wind. We never seemed to approach it, but that deep, melancholy, distant, dream-like sound, still continued, at times, to haunt us like an omen of evil."

How the bell-bird utters this deep loud note is not known, though it is supposed that a fleshy protuberance on its head, which, when inflated with air, stands up like a horn, is, in some way, the cause; but the goat-suckers, in all probability, are indebted to their peculiar width of mouth and throat for this power of voice; for many other birds, in uttering loud notes, are observed to puff and swell out their throats in a very extraordinary manner. For instance, our little summer visitant and sweet songster, the blackcap, when warbling forth his finest notes, distends its throat in a wonderful degree, and those who have chanced to see a brown owl in the act of hooting, will have noticed that they swell up their throats to the size of a pigeon's egg. And persons, who have fine ears for music, have ascertained, by comparing their notes with a pitch-pipe, that their variations are according to certain rules; most of them hooting in B flat, though some of them went almost half a note below it. This strain upon the throat is sometimes carried to a pitch which endangers the bird's life. The bird-fanciers in London, who are in the habit of increasing the singing powers of birds to the utmost, by training them by high feeding, hot temperature of the rooms in which they are kept, and forced moulting, will often match one favourite goldfinch against another. They are put in small cages, with wooden backs, and placed near to, but so that they cannot see each other. They will then raise their shrill voices, and continue their vocal contest till one frequently drops off its perch, perfectly exhausted, and dies on the spot. This will even happen sometimes to birds in a wild state. In the garden of a gentleman in Sussex, a thrush had, for some time, perched itself on a particular spray, and made itself a great favourite from its powerful and constant singing; when one day it was observed, by the gardener, to drop suddenly from the bough in the midst of its song. He immediately ran to pick it up, but found it quite dead; and, upon examination, discovered that it had actually broken a blood-vessel by its exertions, and thus perished.

That the notes and cries of birds serve them instead of language, there can be little doubt; one person indeed is on record, who, having passed much of his time in boyhood alone, in lonely situations, had by close attention acquired such a knowledge of this language, that, from the song of the parents, he knew where the nests were situated, whether they contained eggs, or whether the brood was hatched, knowing even the number of young birds, and their age, before he saw them. In fact, a common observer may, in many instances, understand their different notes, and all their different wants and emotions, as well as the birds themselves do.

Thus, while walking in a wood, if we happen to get sight of a flock of jays before they chance to notice our approach, they will be seen enjoying themselves, and chattering in seeming confusion. Suddenly one will be heard to utter a peculiar short deeper-toned note, when in an instant all is silent, and they may be seen skulking off one by one, only to be heard again, when they have sheltered themselves at a considerable distance. Crows and fieldfares, with many others of what are called congregating birds, or those that live together, act in the same manner. Every sportsman knows how difficult it is to get within gun-shot of a large flock of these birds, though they appear to be so busily employed in picking up their food in a meadow, that it might be supposed they saw nothing else. The fact is, they very often do see nothing, and think of nothing, beyond the food they are in search of, because, on the bough of some neighbouring tree, a good look-out is kept by one of the party; and the moment this sentinel crow or rook gives out his well-known caw of alarm, or the fieldfare its peculiar jarring cry, away go the main body, beyond the reach of the fowler, who thought he could escape observation by lurking behind a tree, or stealing under a hedge bank. A person familiar with the notes of birds has no difficulty whatever in distinguishing between the sounds of pleasure and alarm. If he hears the swallows screaming in a certain note, he is as well aware that cats or hawks are about as if they could tell him so in common language. We once happened to hear a loud outcry amongst a parcel of sparrows, tomtits, and chaffinches, the noise was evidently not their usual note of pleasure, neither was it the clamorous scream they utter when fighting. The bustle occurred within a yard of our window, too near for a hawk to venture; neither was there a cat within sight,—nothing of the sort; but still the din increased, and the bush shook again with flutterings of wings, and clacking of tongues; when, at last, we espied a pair of inquisitive eyes, and a little sharp snout looked out from the twigs, at the bottom of the bush. It was a weasel, which, on seeing that it was discovered, took to its heels; and in an instant the cries of the sparrows ceased, and the whole party dispersed.

It is scarcely necessary to remind the reader of the language so well known in the poultry-yard. The cluck of the hen, when she calls her chickens together; her shriek, if a hawk is seen flying over the brood, and the rapid rush of chickens under her wings: and her cackle of pride or pleasure, when she announces to the whole farm-yard the important fact of her having laid an egg. Even a young chicken has a power of language easily understood. Take, for instance, one of four or five days old, and hold it up to a window where there are flies, and it will immediately seize them, with a little twittering note of pleasure; but if a wasp or a bee is placed before it, at once its note becomes harsh, expressing its dislike as well as fears.

Nobody can doubt, who sees a bird singing, clapping its little wings, turning from side to side, and glancing its bright eyes in all directions, as if courting attention and admiration, that it feels delight and satisfaction. Did we require further proof, we have but to recollect that the songbird is most on the alert with the music of his voice, when its affection and interests are awakened by attention to its mate, during the time of rearing its young. The male may then be generally seen in some twig or bough, at no great distance from the nest, in most cases becoming silent, if aware of a stranger's approach, or exchanging the note of pleasure for another of anger or complaint, which too often produces the very evil it dreads. Thus, the nightingale, one of our shyest and most timid birds, will frequently discover its nest, by making a jarring noise, and also a snapping or cracking, at the same time pursuing people along the hedges, as they walk, where its young are in a helpless state. The male blackcap is still more incautious, for it will commence and continue its song, even when sitting on its nest, and thus too frequently become the innocent cause of the capture of its brood.

The loud cries of other birds, however, particularly of many of the migratory water-birds, which fly by night, are evidently intended for the purpose of keeping them together. Few have been without opportunities of listening, in the silence of the night, to the incessant cackling of a flight of wild geese, on their way to some distant spot, high in the air. In the northern seas, sounds of this sort are more frequently heard from birds which never come so far to the southward. Of these is the red-breasted diver, which seldom quits the water by day, but during the night may be known to be on the wing, at a vast height, by a peculiarly melancholy and distressing scream, exactly resembling that of a young child suffering from agonizing pain. We have listened, by the hour together, to the repeated and successive wailings of these wild melancholy birds; first, the scream is faint, and so distant as scarcely to reach the ear; then increases as the bird passes nearer, till, as it continues its flight, the sound gradually dies away. Soon, another scream from another quarter is faintly heard; and so on, till the dawn appears, when they betake themselves to the element in which they pass the day.

[STANLEY'S *Familiar History of Birds.*]

ON INATTENTION TO PROVIDENCE.

RESIDING, as I constantly do, in the country, and having been long observant of rural things, and the operations of Infinite Wisdom, through the very feeble organs with which I have been endowed, I have often thought, that we, who are daily made sensible of so many manifestations of creative power and mercy, should be more seriously disposed, more grateful for the beneficences of Providence, than those who live in societies removed from these evidences; but yet I neither know nor believe, that we in any respect give greater proof of this disposition, or are more sensible of the benevolence of an overruling Power, than others. The manufacturer, by the combination of artful contrivances, effects his purposes, and by aid of man's wisdom brings his work to perfection; the artisan may eat his bread with all thankfulness and humility of heart, solace his labours, and mitigate his fatigue by the grateful flavour and juices of fruits purchased at the stall; but he sees nothing of the machinery, the gradual elaborations of nature, nor can he be conversant with the multiplicity of influences and events, which are requisite to bring them to his hand. He who lives in the country knows, that an omnipotent impulse must be constantly in action; he may till his land and scatter his corn, but the early and latter rain must soften his furrows; the snow as wool must cover the soil; the hoar frost like ashes lighten his glebe; the sunshine animate the sprouting shoot; and winds evaporate noxious moisture; insects and blights, that hover around, or circulate through the air, must be guided away, or our labours become abortive, or are consumed; we see the bud, the blossom, leaf and germ, all progressively advance, to afford plenty or yield us enjoyment; we see these things accomplished by the influencing interpositions of a beneficent Providence, and in no way effected by the machinery or artifices of our own hands; and it should operate more powerfully, in disposing those who witness them to particular resignation and grati tude, than others who cannot behold them, but view the ingenuity of man as the agent and means of his prosperity; yet how it happens that this principle is not in more active operation within us, I cannot perceive.—From the *Journal of a Naturalist.*

THE FLYING DRAGON. (*Draco volens.*)

FEW of our readers, perhaps, can look at the representation of the harmless little creature we are about to describe, without being reminded of mysterious and extraordinary tales told to them in their early years, of the power and terrible exploits of a race of monsters called *Dragons.* That no such monsters ever existed is now clearly proved; but that there have been found in every age persons credulous enough to receive such marvels as true, and others superstitious or designing enough to impose their fancies on the weak and timid, is equally certain.

Throughout the early history of Greece and Rome, we find the people in the ignorance of heathenism, making the dragon the object of their mythology; thus rendered celebrated, this fabulous creature became the principal ornament of the legends of more recent times.

Proclaimed by the severe voice of history, (says Lacépède,) everywhere celebrated, everywhere described, everywhere dreaded; exhibited under all forms, always clothed with tremendous power, and immolating his victims at a single glance; transporting himself through the midst of the clouds with the rapidity of lightning; dissipating the darkness of night by the terrific splendour of his glaring eyes; uniting the agility of the eagle, the strength of the lion, the mag-

nitude of the giant serpent; sometimes presented under a human figure, endowed with an intelligence almost divine, and adored even in our own days in the great empires of the East,—the dragon, in short, has been all in all, and everywhere to be found *except in nature*.

Such were the imaginary creatures which according to Pliny were to be found in Ethiopia, and in the neighbourhood of Mount Atlas; some of them winged and capable of vomiting flames, others deprived of feet. Aristotle tells us that they poisoned the air with their breath; Elian speaks of them as the sworn enemies of the eagle; and a vast number of other writers have put forth the most ridiculous fables concerning them. These errors are now put to flight; and among civilized nations the belief in dragons of a terrific kind is nearly, if not wholly, extinguished. Nor would the marvellous stories above referred to, have gained credence so long, had it not been for clever deceptions which have appeared from time to time, and have imposed upon philosophers themselves.

In the cabinets of the curious, in old laboratories, and apothecaries' shops, and in the shows of itinerant mountebanks, it was no uncommon thing to find dried specimens of animals of a hideous and unnatural appearance.

These strange forms were artificially composed of the skins of other animals, and were in many cases so skilfully contrived, that in the dried state it was exceedingly difficult to discover the deception. One of these fictitious dragons, ingeniously formed of the skins of snakes, teeth of weasels, claws of birds, &c., was being exhibited at Hamburgh, when the great naturalist, Linnæus, was tarrying in that city. He soon discovered and made known the deception, and thereby so highly excited the wrath of the proprietor of the dragon, that he found it advisable to leave Hamburgh immediately, in order to escape his vengeance.

Previously to this, as Shaw informs us, an instance of the same kind of deception had occurred at Oxford. A Mr. Bobart, superintendant of the Botanical Garden there, found a dead rat, and made it resemble the common pictures of dragons, by altering its head and tail, and thrusting in taper sharp sticks, which distended the skin on each side till it resembled wings. He then let it dry as hard as possible. The learned, on viewing it, immediately pronounced it a dragon: an accurate description of it was sent to the Grand Duke of Tuscany, and several copies of verses were written to commemorate the discovery. At length, however, Mr. Bobart confessed the cheat; and the reasonings of scientific men on the subject were unexpectedly brought to a close. So perfect was the artifice in this instance, that the mock dragon was long preserved in the Museum, or Anatomy School, as a memorable specimen of ingenuity.

In this way, we may account for the extravagant figures represented in the works of Gesner, Aldrovandus, &c. They were doubtless taken from the fabrications of persons in their day, who served their own interest by practising on the credulity of their fellow-men, and exciting that love of the marvellous, which is so largely possessed by most uneducated persons.

The genus of Saurian reptiles to which the name of dragon is now given, comprehends animals which are distinguishable at a glance from the rest of the lizards, by the extension of the first six ribs in a right line, supporting a production of the skin which forms a sort of wing. These wings are developed at the will of the animal, and support him like a parachute when he leaps from branch to branch, but have no force to raise him into the air.

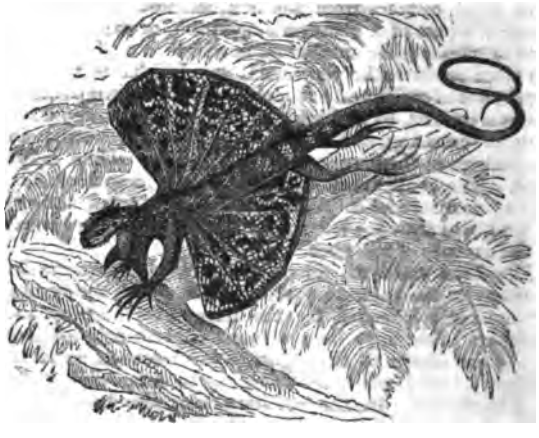
All the dragons are small, and in every respect harmless animals, living in the forests of Asia and Africa, and subsisting on insect food. They are quick and dexterous in their movements among the branches of trees; but crawl with difficulty when they descend to the earth, which they are rarely found to do

The species of which we have given a representation is figured in SHAW'S *Zoology*, and seems to be the same with the *Draco viridis* of other authors. It is spoken of by Bontius as a pretty reptile, very common in the island of Java. It inflates its yellowish goitres when it flies, without, however, being able to traverse any great space. It only shoots from tree to tree, a distance of about thirty paces; and produces, by the agitation of its wings, a slight noise. It is neither venomous nor mischievous. The inhabitants of Java handle it without fear and without danger; and it often becomes the prey of serpents. Shaw describes it as a highly curious creature, nine or ten inches long, including the tail, which is extremely long in proportion to the body. The head is of a moderate size, and singular shape; a triple-pouch descends from the throat, analogous in some degree to the gular crests of the Guana and other lizards. The mouth is wide, and is furnished with numerous small teeth, and a thick and large tongue. The body and limbs of the reptile are slender, and the neck small. The colour of the skin is an elegant pale blue, or bluish green on the upper part, with dusky undulations or bars on the back and tail. The wings are elegantly spotted with different shaped patches of black, deep brown, and white, and have a white bordering. The under surface of the animal is of a whitish-brown colour.

Draco lineatus is a very rare reptile, inhabiting the great woods of the island of Java.

Draco fuscus, or brown dragon, so called from its colour, is rather longer and thicker than the one we have described. The wings are broader, and the tail is less elongated.

In closing our account of dragons, we must not omit to mention the fossil remains of flying lizards, which have been brought to light by means of geological research. These animals, to which Cuvier has given the name of *Pterodactyls*, are proved by the construction of the skeletons to have had wide-spreading wings. Long slender bones are seen, which evidently formed the stretchers to membranedus expansions of considerable size. The neck in these animals is very long, the head large, the jaws armed with pointed teeth, and the tail very short. The size and form of the foot, leg, and thigh, show that the Pterodactyle was capable of perching on trees, and of standing firmly on the ground, where, with its wings folded, it might walk or hop like birds. Eight species of Pterodactyles have been discovered, varying in size from that of a snipe to a cormorant. In some places the bones of these animals are found associated with the remains of dragon-flies, in others with the elytra, or wing-cases of beetles. A specimen about the size of a raven was discovered in the lias of Lyme Regis, and is now in the British Museum.



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CANADIAN SKETCHES.

CANADIAN LOG-HOUSE.

II. THE LOG-HOUSES

IN our present Canadian sketch, we propose to describe the dwellings which emigrants from the mother country are accustomed to build, upon their first entrance upon woodland life. Such dwellings, humble as they may at first appear, are in reality a type of those which preceded the present abodes in the towns of Canada; for all the inhabitants, except those officially employed, may be deemed to be either emigrants or the descendants of emigrants.

The reader must bear in mind, that the land in Upper Canada, which is given, sold, or let to emigrants, is generally covered with magnificent forest-trees. These have to be cut down, and a *log-house* built of a portion of their trunks. Supposing an emigrant family to have arrived at the destined plot of ground the first operation is to fell the trees. This is done by cutting a notch into each side of the tree, about two feet above the ground; and rather more than half through on the side it is intended the tree should fall. The lower sides of the notches are horizontal, while the upper make angles of about 60°; and a trunk so notched can very readily be felled to the ground.

The writer of a little work under the title of *Six Years in the Bush*, thus records the events of his first "clearing"-day:—

Having laid in a good store of axes and other necessaries for the use of the men, I returned to the settlement (the plot of ground purchased). The sun was shining brightly on the lake as I crossed, and a number of Indian canoes gave it a very pretty and animated appearance. One of the squaws offered me some maple sugar for sale, which I purchased at about four-pence per pound; and had the satisfaction of hearing it pronounced by my men to be of an excellent quality. As I approached the settlement, the heavy fall of the axe gave notice that the work of demolition was going forward; several hemlock and other soft-wooded trees lay stretched along the shore; and I must confess it was with somewhat an English feeling of sorrow for their fate that I stepped out amongst them. A glance at the Falls, however, and the clear blue lake beyond, through the opening, reassured me; and I soon entered into the exultant feelings of the choppers, as one after another the noblest of these ancient lords of the soil groaned under the stroke of the axe, trembled for a few seconds, and fell.

When the trees have been felled, they are stripped of the principal branches, and cut into pieces of twelve or fifteen feet in length. The whole is left in this state until the proper season for *burning* arrives, which is generally in May. At this time, all the branches and small wood are set on fire, and consumed. The large lops are then either piled in heaps and burned, or rolled away to make fences. The surface of the ground, after burning the wood on it, is quite black and charred: and if it be intended for grain, it is now sown without farther preparation or tillage, other than covering the seed with a hoe. The stumps of the trees, that is, those portions which rise about two feet high, still left standing, are not removed, (principally on account of the value of hand-labour among new settlers;) but are left to decay. The roots of the spruce, beech, birch, and maple, will decay sufficiently to take out the stumps in four or five years;

but those of the pine require a much longer time. After the stumps are removed, the plough is used, and the same system of husbandry is pursued as in Great Britain.

In the mean time, the family of the emigrant must be provided with a home, for some months elapse before the ground can be cleared for the erection of dwellings: indeed it is often a year or two before the inmates can proceed to their cleared land. During this interval they reside in rude dwellings called *shanties*, often clustered together in small villages, for mutual comfort. Such a shanty is very little more than a shed built with logs, the chinks between the round edges of the timbers being filled with mud, moss, and bits of wood; the roof is frequently composed of logs, split and hollowed with the axe, and placed side by side, so that the edges rest on each other; the convex and concave surfaces being alternately uppermost, every alternate log forms a channel to carry off the rain and melting snow. The eaves of such a building resemble the scollopped edges of a clamp shell; but rude as this covering is, it effectually answers the purpose of keeping the interior dry; far more so than the roofs formed of bark or boards, through which the rain will find entrance. Sometimes the shanty has a window, sometimes only an open doorway, which at the same time admits the light, and lets out the smoke. A rude chimney, which is often nothing better than an opening cut in one of the top logs above the hearth, serves as a vent for the smoke; the only precaution against the fire catching the log-walls behind the hearth, being a very few large stones placed in a half-circular form, or more commonly a bank of dry earth raised against the wall.

It must be understood that such a primitive hut as we have described, is occupied only by the very poorest classes of emigrants, such as have inhabited dwellings of the humblest kind in their own country. Those who are at all removed from absolute poverty, have the means of collecting around them, even in their temporary abodes, many comforts and conveniences. Besides this, there is, generally speaking, a friendly and social feeling, a willingness to render mutual assistance, among the new settlers, which is exceedingly important, and conduces much to the comfort of all.

Supposing the settler's grant of land to be cleared, he proceeds to erect his habitation or *log-house*, as it is called, which is midway between a shanty and an English cottage. Round lops or trunks of trees, about fifteen feet long, and without much dressing or preparation, are laid horizontally over each other, and notched at the corners, so as to fit them down sufficiently close. One is first laid to begin the walls on each side; then one at each end, all crossing each other at the corners; and so on until the walls are raised to a height of six or seven feet. The seams are closed up with moss or clay; three or four rafters are then laid for the roof, which is covered with the rinds of birch or fir-trees, and thatched either with spruce branches or long marine grass that is found washed up along the shores of the great lakes. Poles are laid over this thatch, together with birch withes, to keep the whole secure. The chimney is formed of a wooden frame-work, placed on a slight foundation of stone, roughly raised a few feet above the ground. This framework goes out through the roof, and its sides are closed with clay, and a small quantity of straw, kneaded together. A space large enough for a door, and another for a window, are cut through the walls. Under the centre of the cottage a square pit or cellar is dug, for the purpose of preserving potatoes, and other vegetables during the winter. ("Potatoes," says Mr. Bouchette, "are to settlers with limited means, from their easy culture and quick production, the very first object of attention as an article of food.") Over the potato-pit a floor of boards or logs, hewn flat on the upper side, is laid, and another over head, to form a sort of garret. When the door is hung, a window sash, with six, nine, or twelve panes of glass, is fixed; and the house, by internal partitions, is divided as may be necessary into separate rooms. If the means of the settler admit of it, he covers the roof with shingle boards instead of bark or thatch,—lines the wall, floor, &c., with planks, instead of leaving the rough logs visible,—and covers the walls, and perhaps the floor, with matting or baize; in short, there are the means of purchasing, from stores and dealers in the towns, many articles conducive to the comfort of the settlers; but the general nature and construction of a log-house are nearly such as we have described.

When an emigrant (or a *settler* as we may more properly term him, when he has arrived at the colony,) is about to erect a log-house, he "calls a *bee*," to use a familiar American term; that is, he calls upon his neighbours to come and lend a hand in building his house. This call is always responded to readily and cheerfully; for most of those who render the service required, have had similar services performed for them at a former time. There are "logging-bees," "chopping-bees," and "raising or building bees," each being devoted to a different purpose, and each implying an assembly of neighbours meeting to work jointly and simultaneously for a new-comer, in order that he may have a house to live in as soon as possible. No pay or reward is given or expected on such an occasion, the obliged party merely providing provisions for the short time that the "bee" lasts. This custom arose from necessity; and although it may be inconvenient to attend at a particular moment to such a call, the recollection of similar services received, seldom allows a person to refuse. It is, in fact, considered as a debt of honour, which a settler feels himself bound to attend to. Nor does this operate merely on settlers belonging to one class or rank in life; poor and rich, the farmer-settler and the labourer, unite for this purpose; if personal labour be not rendered, the aid of a servant, or of a yoke of cattle, is substituted.

To illustrate these remarks, we will quote a passage from an interesting volume called *The Backwoods of Canada*. The writer and her family, who were emigrants, resided in the house of a friend during the "clearing" of their plot of land. When all was ready for building a house, a "bee" was called:—

Sixteen of our neighbours cheerfully obeyed our summons; and though the day was far from favourable, so faithfully did our *hive* perform their tasks, that by night the outer walls were raised. The work went merrily on, with the aid of plenty of Canadian nectar (whiskey), the honey that our bees are solaced with. Some huge joints of salt pork, a peck of potatoes, with a rice pudding, and a loaf as big as an enormous Cheshire-cheese, formed the feast that was to regale them during the raising. This was spread out in the shanty, in a very rural style. In short, we laughed, and called it a "pic-nic in the back-woods;" and rude as was the fare, I can assure you great was the satisfaction expressed by all the guests of every degree, our "bee" being considered as very well conducted. In spite of the difference of rank among those that assisted at the "bee," the greatest possible harmony prevailed, and the party separated well pleased with the day's work and entertainment. The following day I went to survey the newly-raised edifice, but was sorely puzzled, as it presented very little appearance of a house. It was merely an oblong square of logs, raised one above another, with open spaces between every row of logs. The spaces for the doors and windows were not then chopped out, and the rafters were not up. In short, it looked a very queer sort of a place, and I returned home a little disappointed, and wondering that my husband should be so well-pleased with the progress that had been made. A day or two afterwards I again visited it. The sleepers were laid to support the floors, and the places for the windows and doors cut out of the solid timbers, so that it had not quite so much the look of a bird-cage as before.

To this succeeded the operations for constructing a tolerable log-house, such as covering the roof with shingles, sawing-out and laying down flooring boards, plastering the walls inside and out with a mixture of lime and clay,

glazing the windows, &c. We may remark, that the settlers generally glaze their own windows. Boxes of glass, containing panes of various sizes, can be bought in the towns of Canada; and a little ingenuity will soon teach the mode of fixing the glass in the windows.

It has been observed, by one of the emigrants who have recorded their proceedings, that the erection of a *saw-mill* is generally the first marked event, in the growth of a village from several separate settlements. At first, some one or two adventurers, possessed of a little capital, purchase a few acres of land on the banks of a river or stream, where there is good water-power. Two or three rude huts or shanties are erected, and a small clearing made in the forest; and by degrees others are attracted to the spot. The original settler, meanwhile, has probably gained a little additional property by trading, and embarks it in a saw-mill, which induces many to come into the neighbourhood, to avail themselves of the facility which it affords for building. Then, as the settlement increases, some bold individual is induced to erect a grist or flour-mill, which again serves as an attraction; a growing population requires the necessaries of life at hand; "stores" are opened; taverns are licensed, and in a few years a thriving village or an important town springs up in the heart of the forest.

To show that it is not merely the labouring classes who make themselves satisfied with the simple log-houses of the emigrants, we may state that the writer of the book quoted above was the wife of an English officer, who with his family had emigrated to Canada; a circumstance by no means unusual, since the conclusion of the continental war has left many military men comparatively unemployed. In many of these instances a considerable plot of land in Canada was either given to them by Government or sold at a trifling price. It must, doubtless, afford regret to an educated man thus to sever himself from home and its associations; but if he be industrious and intelligent, whatever be his rank in life, he will rarely fail to obtain the means wherewith to live comfortably, in Canada. And with respect to mental culture, the following remarks, from an emigrant who had received a classical education in England, are valuable:—

I once thought, when the resolution to emigrate was first formed, how useless had been the large expenditure on my education, since I was to forego its advantages, and pass my life among those who would neither know nor appreciate its worth. But I have found it far otherwise, and would say to all of my own station in life whose circumstances, or a "truant disposition good," may hereafter lead into the Bush—think no sort of knowledge unprofitable, or unsuited to your kind of life; but store your mind with sound, wholesome literature, and you will find within you a fountain as grateful as the well-spring to the parched traveller in the desert.

Relentless Time, that steals with silent tread,
Shall tear away the trophies of the dead;
Fame, on the pyramid's aspiring top,
With sighs shall her recording trumpet drop;
The feeble characters of Glory's hand
Shall perish, like the tracks upon the sand;
But not with these expire the sacred flame
Of Virtue, or the good man's awful name.—Bowles.

All the virtues of domestic life are lessons which are taught in the Christian school. It is like the Sun, who, though he regulates and leads on the year, dispensing life and light to all the planetary worlds, yet disdains not to cherish and beautify the flower which opens its bosom to his beam: so the Christian religion, though chiefly intended to teach us the knowledge of salvation, and be our guide to happiness on high, yet also regulates our conversation in the world, extends its benign influence to every circle of society, and peculiarly diffuseth its blessed fruits in the paths of domestic life.—Hogg.

EASY LESSONS ON REASONING.

Lesson X.

§ 1. A Proposition is, as has been said, an act of judgment expressed in words; and is defined to be a "Sentence which *asserts*;" or, in the language of some writers, an "indicative Sentence:" "*indicative*," [or "asserting"] meaning "that which *affirms or denies* something." It is this that distinguishes a *Proposition* from a *Question*, or a *Command* &c.

Propositions considered merely as *Sentences*, are distinguished into "Categorical" and "Hypothetical."

The Categorical asserts simply that the Predicate does, or does not, apply to the Subject: as "the world had an intelligent maker:" "Man is not capable of raising himself, unassisted, from the savage to the civilized state." The Hypothetical [called by some writers, "Compound"] makes its assertion under a *Condition*, or with an *Alternative;* as "If the World is not the work of chance, it must have had an intelligent maker:" "Either mankind are capable of rising into civilization unassisted, or the first beginning of civilization must have come from above."

The former of these two last examples is of that kind called "Conditional-propositions;" [or "hypothetical," according to those writers who use the word "compound" where we have used "hypothetical"] the "*condition*" being denoted by "if," or some such word. The latter example is of the kind called "Disjunctive;" the *alternative* being denoted by "either" and "or."

The division of Propositions into Categorical and Hypothetical, is, as has been said, a division of them considered merely as *Sentences:* for it extends to other kinds of Sentences also. Thus, "Are men capable of raising themselves to civilization?" "Go and study books of travels," are *categorical sentences*, tho' not *propositions*. "If man is incapable of civilizing himself, whence came the first beginning of civilization?" is a *conditional question:* and "Either admit the conclusion, or refute the argument," is a *disjunctive command*.

At present we shall treat only of Categorical Propositions.

§ 2. It has been above explained that Propositions (of this class,—the Categorical) are divided according to their "Quantity" into "Universal" and "Particular:"—that an "*Indefinite*-proposition" is in reality either the one or the other; tho' the form of expression does not declare *which* is meant:—and also that a "*Singular*-proposition" is equivalent to a "Universal," since its Subject cannot but stand for the whole of what that Term denotes, when that whole is one single Individual.

You have also learnt that Propositions are divided, according to their "Quality," into "affirmative" and "negative." The division of them, again, into "true" and "false" is also called a division according to their 'quality;" namely, the "quality of the *Matter:*" (as it has relation to the subject-matter one is treating of) while the other kind of quality (a proposition's being *affirmative* or *negative*) is "the quality of the *expression*."

The "quality of the matter" is considered (in relation to our present inquiries) as *accidental*, and the "quality of the expression" as *essential*. For tho' the truth or falsity of a proposition—for instance, in Natural-history is the most essential point, *in reference to Natural-history*, and of a *mathematical* proposition, in reference to *Mathematics*, and so in other cases,—this is merely accidental in reference to an inquiry (such as the present) only as to *forms of expression*. In reference to *that*, the essential difference is that between affirmation and negation.

And here it should be remarked by the way, that as, on the one hand, every *Proposition* must be either true or false, so, on the other hand, *nothing else* can be, strictly speaking, either true or false. In colloquial language however, "true," and "false" are often more loosely applied; as when men speak of the "*true* cause" of any-

thing; meaning, "the *real* cause;"—a "*false* prophet,"—that is, a *pretended* prophet, or one who *utters falsehoods;*—a "true" or "false" argument; meaning a *valid*, [real] or an *apparent*-argument;—a man "true," or "false" to his friend; *i.e.*, *faithful* or unfaithful &c.

A Proposition, you are to observe, is Affirmative or Negative according to its *Copula; i.e.* according as the Predicate is affirmed or denied of the Subject. Thus "Not to advance, is to fall back," is *affirmative:* "No miser is truly rich" [or "a miser is not truly rich"] is a *negative.* "*A few* of the sailors were saved," is an affirmative; "*Few* of the sailors were saved," is properly a negative; for it would be understood that you were speaking of "most of the sailors," and *denying* that they were saved.

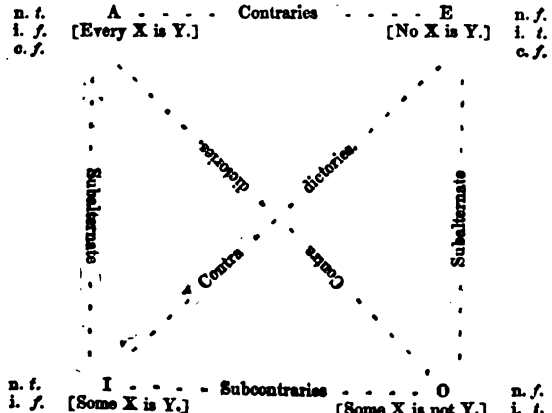
Since then every Proposition must be either Affirmative or Negative, and also, either Universal or Particular, Propositions are considered as divided (taking into account both Quantity *and* Quality) into four Classes; which, for brevity's sake, are usually denoted by the Symbols A, E, I, O; namely A. Universal affirmative, E. Universal-negative, I. Particular-affirmative, and O. Particular-negative.

§ 3. Any two Propositions are, technically, said to be "*opposed*" to each other, when "having the same Subject and Predicate, they differ either in Quantity, or in Quality, or in both."

In ordinary language however (and in some technical treatises) propositions are not reckoned as "opposed" unless they differ in *Quality.*

It is evident that with any given Subject and Predicate, you may state four distinct Propositions, A, E, I and O: any two of which are said to be "opposed." And hence there are (in the language of most technical writers) reckoned four kinds of "Opposition." 1st, A and E,—the two Universals, Affirmative and Negative, (always supposing the *Terms* the same) are called "*Contraries*" to each other: 2nd, The two Particulars, I and O, "*Subcontraries.*" 3rd, The two Affirmatives again, or the two Negatives, (A and I, or again, E and O) are called "*Subalterns;*" and 4th, those which differ both in Quantity and Quality—as A and O, or E and I, —are called "*Contradictories.*"

It is usual to exhibit in a Scheme (such as that below) these four kinds of "Opposition;" by placing at the corners of a Square the Symbols A, E, I, O, as representing, respectively, the abovementioned four classes of Propositions.



You may substitute for the unmeaning Symbols X, Y (which stand for the Terms of the above Propositions) whatever significant Terms you will; and on their meaning, of course, will depend, the truth or falsity of each Proposition.

For instance, Naturalists have observed that "animals having horns on the head are universally ruminant;" that, of "carnivorous animals" none are ruminant; and that, of "animals with hoofs," some are ruminant, and some, not. Let us take then instead of "X," "animals with horns on the head," and for "Y," "ruminant:" here, the real connexion of the Terms in respect of their meaning—which Connexion is called the "*matter*" of a proposition—is such that the Predicate may be affirmed universally of the Subject; and of course the *affirmatives* (whether Universal or Particular) will be true, and the "negatives," false. In this case the "matter" is technically called "necessary;" inasmuch as we *cannot avoid believing* the Predicate to be applicable to the Subject.

Again, let "X" represent "carnivorous animal," and "Y" "ruminant:" this is a case of what is called "impossible matter;" (*i.e.*, where we *cannot possibly conceive* the Predicate to be applicable to the Subject) being just the reverse of the foregoing: and, of course, both the Affirmatives will here be false, and both Negatives true.

And lastly, as an instance of what is called "contingent matter,"—*i.e.*, where the Predicate can neither be affirmed universally, nor denied universally, of the Subject, take "hoofed animal" for "X" and "ruminant" for "Y;" and of course the Universals will both be false, and the Particulars, true: that is, it is equally true that "some hoofed animals are ruminant," and that "some are not."

§ 4. You will perceive then, on examining such a Scheme, that "*Contrary*" Propositions can never be both of them true, tho' they may (viz: in "contingent-matter") be both false: that "*Sub*contraries, on the other hand, may be both true, but never both false: that "*Contradictories*" [*diametrically*-opposite Propositions] must in every case be, one true, and the other false: and that "*Subalterns*" (of which the Universal is called the "Subalter*nant*," and the Particular, the "Subalter*nate*") may be either both true, or both false, or the one true and the other false.

These last Propositions however, tho' reckoned, as has been said above, by most dialectical writers, among those *opposed*, are not so accounted in ordinary discourse.

The four kinds of Propositions, A, E, I, O, have been, in the Scheme, marked, each, with the letters *t* for "true" and *f* for "false," and also with the letters *n, i, c,* to denote the three kinds of matter, (necessary, impossible, contingent,) in order to point out *which* propositions are true, and which, false, in each kind of matter.

The technical-terms we have here explained, are needful to be learnt, as being, some of them, in frequent use, and as being convenient for the avoiding of circumlocution and of indistinctness.

"Contradictory-opposition" is the kind most frequently alluded to, because (as is evident from what has been just said) to *deny*,—or to *disbelieve*,—a proposition, is to *assert*, or to *believe*, its Contradictory; and of course, to *assent* to, or *maintain* a proposition, is to reject its Contradictory. Belief therefore, and Disbelief, are not *two different* states of the mind, but the *same*, only considered in reference to two Contradictory propositions. And consequently, *Credulity* and *Incredulity* are not opposite habits, but the same, in reference to some class of propositions, and to their contradictories.

For instance, he who is the most *incredulous* respecting a certain person's *guilt*, is, in other words, the most ready to believe him *not guilty;* he who is the most credulous* as to certain works, being within the reach of Magic, is the most incredulous [or "slow of heart to believe"] that they are *not* within the reach of Magic; and so, in all cases.

The reverse of *believing this or that individual* proposition, is, no doubt, to *disbelieve that same* proposition: but the reverse of *belief, generally*, is (not disbelief; since that implies belief; but) *doubt.*

And there may even be cases in which *doubt* itself may amount to the most extravagant credulity. For instance if any one should "doubt whether there is any

* As the Jews, in the time of Jesus, in respect of his works.

such Country as Egypt," he would be in fact *believing* this most incredible proposition; that "it is *possible* for many thousands of persons, unconnected with each other, to have agreed, for successive Ages, in bearing witness to the existence of a fictitious Country, without being detected, contradicted, or suspected."

All this, tho' self-evident, is, in practice, frequently lost sight of.

§ 5. A Proposition is said to be "*converted*," when its "Terms are transposed;" *i. e.*, when the Subject is made the Predicate, and the Predicate the Subject. And when no other change is made, this is called "simple-conversion." When for instance I say "no carnivorous animal is a ruminant," the "simple-*converse*" of this would be, "no ruminant is a carnivorous animal."

The "conversion" of such a proposition as this, "No one [is happy who] is anxious for change," would be effected by altering the arrangement of the words in brackets, into "who is happy."

The Conversion of a Proposition is said to be "*illative*," when the truth of the "*Converse*" is "implied" (looking merely to the *form of expression*) "by the truth of the original proposition;" [or "*expositа*"] which is the case in the example above: it being evident that if the former of those Propositions (whatever may be the meaning of the Terms) be true, the Converse must be true also. For to say that "No X is Y," is to imply that "no Y is X."

You are to observe however that the Converse of a true Proposition may happen to be true also, without the Conversion's being "illative;" that is, when the truth of that Converse is not implied by the truth of the "Exposita" [the original proposition]. Thus, "Every X is Y" does not imply that "every Y is X," tho' it may happen that both propositions may be true.

For instance, that "Every tree is a vegetable," does not imply that "Every vegetable is a tree;" and this last happens in fact to be not true. But no more is it implied, when I say "every equilateral triangle is equiangular," that "every equiangular triangle is equilateral;" for tho' both these propositions *are* true, the one of them does not imply the other; and they are separately demonstrated as distinct propositions, in geometrical treatises.

In order to understand why the simple-conversion of "every X is Y," into "every Y is X," is not "illative," you have only to observe that, in the "Exposita," [original proposition] "Y" is *undistributed*, as being the predicate of an Affirmative; while, in the "Converse," it is "distributed," by being made the *Subject of a Universal*. A *new Term* is therefore, in fact, introduced; since instead of *part* of the Term "Y" we have employed the *whole* of it; and the agreement or disagreement of one Term with *some part* of another Term, does not imply its agreement or disagreement with *every part* of it; that is, with the *whole*. For tho' a part is implied by a whole, a whole is not implied by a part.

When, for instance, I say "every tree is a vegetable" I am employing (as was formerly explained) the Term "vegetable" to stand only for *part* of its "significates;" and this does not authorize me to employ it (in the Converse) as standing for *all* its Significates; as in saying that "*every* vegetable is a tree."

And strictly speaking, *that* is not a *real* "conversion," —but only an "*apparent* conversion"—which is not "illative." For, (as has been above said) there is not a *mere transposition* of the terms, but a *new term* introduced, when a term which was undistributed in the "exposita," is distributed [taken universally] in the Converse.

But as it is usual, in common discourse, to speak of "an *unsound* argument,"—meaning, "an *apparent*-argument, which is in reality *not* an argument," so, in this case also, it is common to say, for instance, that "Euclid proves first that all equilateral triangles are equiangular, and afterwards he proves the *Converse*, that all equiangular triangles are equilateral:" or again, to say, "It is true that all money is wealth; but I deny the *Converse*, (in reality, the *apparent*-converse) that all wealth is money."

§ 6. Conversion then, strictly so called,—that is, "illative-conversion,"—can only take place when no term is distributed in the Converse, which was undistributed in the "Exposita."

Hence, since E [a Universal-negative] distributes both terms, and I, [a Particular-affirmative] neither, these may both be simply-converted illatively. As in the example above, "no carnivorous animal is ruminant" implies by the very form of the expression, that "no ruminant is a carnivorous animal." And so also "some things which are strange are believed," implies that "some things which are believed are strange."

We may also illatively-convert A [a Universal-affirmative] by altering its "*Quantity*" from Universal to Particular. For "Every X is Y" does imply that "*some* Y" (tho' not that "*every* Y") is X." So in the example above we might allowably have stated (tho' not that "all vegetables," yet) that "some vegetables are trees."

This procedure is called "conversion by *limitation*;" or according to some writers, "conversion per accidens." And it may be applied to E also; as for instance in the example above, you might have said "*Some* ruminant is not carnivorous;" tho' this would have been to come short of what you were warranted in stating.

But in O [particular-negative]the conversion will not be illative, on account of the rule that the Predicate of a Negative is always distributed. The proposition therefore "Some X is not Y" does not imply that "some Y is not X;" since X is distributed in the "Converse" and was not, in the "Exposita," in which it was the Subject of a Particular. It is true that "some men are not negroes;" but this does not imply that "some negroes are not men."

A Particular negative [O] cannot be converted illatively except by changing its *Quality* from negative to affirmative, (without altering the sense) by regarding the negation as attached to the PREDICATE instead of to the *Copula*. Thus, "Some X——is not——Y" may be taken as an affirmative, namely, "Some X——is——not Y;" and this latter proposition [I] may of course be simply-converted illatively; as "Some not Y——is ——X.

S. Cop. Pr.
S. Cop.
Pr.
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P.

Thus, "Some men are not-negroes" implies that "Some who are not negroes are men;" or (as such a proposition is often expressed) "One may be a man *without* being a negro." So again "Some who possess wealth are not happy," implies that "Some who are not-happy possess wealth."

§ 7. This procedure is technically called "Conversion-by-*negation*," [or, by Contraposition"]. It is applicable also to [A] Universal-affirmatives. For, to *affirm* some Predicable of a Subject, or [to assert the *presence* of some attribute] is the same thing in sense as to *deny* its *absence*: hence a Universal-affirmative may be stated as a Universal-*negative;* which (as we have seen) may be simply-converted.

Thus Every "X is Y," is *equipollent* [or *equivalent in sense*] to "No X is not Y;" which may be illatively converted into "nothing that is not—Y is X:" [or "whatever is not Y——is not—X"].

So the proposition, "Every true poet is a man of genius," may be stated as "No true poet-is—not-a-man-of-genius;" which (being E) may be illatively converted, into "no one who is not a man of genius is a true poet;" or (as such a proposition is very commonly expressed) "*None but* a man of genius can be a true

poet;" or again, "a man of genius *alone* can be a true poet;" or again "One cannot be a true poet *without* being a man of genius."

And here it is worth remarking by the way, that in such examples as the above, the words "may," "can," "cannot," &c. have no reference (as they sometimes have) to *power*, as exercised by an agent; but merely to the *distribution* or *non-distribution of Terms:* or to the *confidence* or *doubtfulness* we feel respecting some supposition.

To say, for instance that "a man who has the plague *may* recover," does not mean that "it is in his *power* to recover if he chuses;" but is only a form of stating a *particular-proposition*: [I] namely, that "*Some* who have the plague recover." And again to say, "there *may* be a bed of coal in this district," means merely, "The existence of a bed of coal in this district—is—a thing which I cannot confidently deny or affirm."

§ 8. So also to say "a virtuous man *cannot* betray his Country" [or "it is *impossible* that a virtuous man should betray &c."] does not mean that he lacks the *power*, (for there is no *virtue* in not doing what is out of one's power) but merely that "not betraying one's country" forms an *essential part of the notion* conveyed by the *term* "virtuous." We mean in short that it is as much out of *our* power to *conceive* a virtuous man who should be a traitor, as to conceive "a Square with *unequal sides;* that is, a square which is *not* a square. The expression therefore is merely a way of stating the Universal-proposition [E] "No virtuous man betrays his Country."

So again, to say "a weary traveller in the deserts of Arabia *must* eagerly drink when he comes to a Spring," does not mean that *he* is *compelled* to drink, but that *I* cannot *avoid believing* that he will;—that there is no *doubt* in my mind.

In these and many other such instances, the words "may," must," "can," "impossible" &c. have reference, not to *power* or *absence of power in an agent*, but only to *universality* or absence of Universality in the *expression;* or, to *doubt or absence of doubt* in our own mind, respecting what is asserted.

IT is not by rigorous discipline, and unrelaxing austerity, that the aged can maintain an ascendant over youthful minds. The constraint which their presence will impose, and the aversion which their manners will create, if the one be constantly awful, and the other severe, tend to frustrate the effect of all their wisdom. They must assume the spirit of the companion and the friend; and mix with the authority of age a proper degree of indulgence to the manners of the young. Instead of lessening the respect due to their years by such condescension, they take the surest method to increase it. Old age never appears with greater dignity than, when tempered with mildness, and enlivened with good humour, it acts as the guide and the patron of youth. Religion displayed in such a character, strikes the beholders, as at once amiable and venerable. They revere its power, when they see it adding so much grace to the decays of nature, and shedding so pleasing a lustre over the evening of life. The young wish to tread in the same steps, and to arrive at the close of their days with equal honour. They listen with attention to counsels which are mingled with tenderness, and rendered respectable by gray hairs. For, notwithstanding all its presumption, youth naturally bends before superior knowledge and years. Aged wisdom, when joined with acknowledged virtue, exerts an authority over the human mind, greater even than that which arises from power and station. It can check the most forward, abash the most profligate, and strike with awe the most giddy and unthinking.—BLAIR.

FRUITLESS is sorrow for having done amiss, if it issue not in a resolution to do so no more. And in forming this resolution, no time is to be lost. He who doth not resolve to-day, will be much less disposed to resolve to-morrow. Procrastination in many cases is dangerous: in this, it is often fatal.—BISHOP HORNE.

WHAT IS THE COLOUR OF THE SEA?

MANY of the proper names of places in various parts of the world seem to have been originally derived from certain striking physical peculiarities which suggested to the natives, or to the discoverers of the places, the names which they now bear. The quality most likely to attract attention, especially with reference to large collections of water is *colour*, and accordingly we have seas to which White and Black, Red, Vermilion, and Yellow, have been respectively applied.

Rivers also are said to present their characteristic colours; and not only the water, but also the ice of different streams, has its peculiar hue. The ice of the Rhine is always bluish; while on the other hand, the ice of the Moselle is always greenish. The ice of the small rivers that pour into the Lower Rhine is either white or pale greenish. This difference of colour is so striking that the boatmen guide themselves by it, and they know whether it is Rhine or Moselle ice that they have to do with.

Colonel Jackson, in his Memoir on the Congelation of the Neva, says,

Every traveller who has seen ice in large masses, speaks with rapture of its colours. To some it is of a roseate hue, to others emerald green; some describe it as being blue; others as sea green. I have examined the blocks on the Neva, in all directions, under all aspects of the sky, and at different times of the day, and have found the colour to be invariably the same when the ice is pure. It is then of a pale blue, inclining to aqua-marine green; if there be snow on one side, the blue is less visible, and the colour is sensibly greener. Examined closely, the blocks present innumerable cracks near the surface, which, like similar accidents in rock-crystal, refract the light into all the colours of the prism; the most predominant, however, is a rich and exquisitely beautiful sapphire blue, which, being softened by the distance, is probably the cause of the pale blue tint of the whole.

It becomes, therefore, interesting to inquire into the circumstances which impart so large a variety of tints to sea and river water, which we are so accustomed to refer to as blue. Confining our remarks chiefly to the colour of sea water, (since the explanation applies equally to both) and availing ourselves of the valuable memoir of M. Arago on the subject, we proceed to invite the reader's attention to the solution of the inquiry, "What is the colour of the sea?"

To this question, the responses, indeed, might be very nearly identical. Mr. Scoresby compares the general tint of the Polar Seas to an *ultramarine blue;* M. Costaz assimilates the colour of the waters of the Mediterranean to a perfectly transparent solution of the most beautiful *indigo*, or to *celestial blue;* Captain Tuckey characterises the waves of the Atlantic in equinoctial regions, by the words *bright azure;* and Sir Humphrey Davy names as *bright blue* the hue reflected by pure water, produced by the melting of snows and ice. It appears then that the *peculiar* tint of the ocean is always *celestial blue* more or less deep, that is to say, mixed with smaller or larger quantities of white light.

But the waters of the sea are often mingled with a variety of substances, which impart their peculiar hue or modify that of the water. Thus, for example, the green bands, so widely extended and so peculiarly striking in the Polar regions, contain myriads of medusæ of a yellowish tint, which when mixed with the blue colour of the water produce the green. Near to Cape Palmas, upon the coast of Guinea, Captain Tuckey's vessel appeared to be sailing in a sea of milk; an appearance which arose also from multitudes of animals floating upon the surface, and so concealing the natural colour of the liquid. The bands of carmine red, which several navigators have noticed on the great ocean, proceed from the same cause. Sir H. Davy states, that when the tint of the Swiss lakes passes from blue to green, it is because its waters are impregnated with vegetable substances.

Near the mouths of great rivers, also, the sea has often a brownish hue, arising from the mud, and other earthy matters which are there held in suspension. The inquiry, therefore, "What is the colour of the sea?" must be kept quite clear of these accidental and local disturbances, and be confined to pure sea water.

Again:—The celestial blue tint of the sea is modified, and sometimes even totally changed in those places where the water is not very deep. The reason is, because the light reflected by the bottom reaches the eye mixed with the natural light of the water. The effect of this superposition may be calculated by the laws of optics; but we must join to our acquaintance with the nature of the two commingled tints, that, which is more difficult to ascertain,—their comparative intensities. Thus, a bottom of yellow sand reflecting but lightly, gives to the sea a green tint, because the yellow mingling with the blue produces green; now, if without changing the shades, the *dull* yellow is replaced with a *bright* yellow, the slight blue of pure water will scarcely suffice to make this a lively light green, and the sea will appear yellow. In the Bay of Loango the waters are always deep red; so much so, that they appear to be mixed with blood:—Captain Tuckey satisfied himself that the bottom is intensely red. If for this bright red bottom be substituted one of the same shade, but obscure and reflecting but slightly, the waters of the Bay would then appear orange-coloured, or even perhaps yellow.

But it may be objected to this method of regarding the subject, that a bottom of white sand ought not to alter the hue of the sea, because, if white weakens the colours with which it mingles, it does not change the tint. In answer to this, it may be asked, how can we be certain that the sand at the bottom is white? We cannot be certain of this in the open day, after having brought up a portion and exposed it to the white light of the sun, or of the clouds; because the sand may not be in the same condition when beneath the water. If in the open air it be illuminated with red, green, or blue light, it would then appear red, green, or blue. What is the colour then that falls upon it at the bottom of the water?

Water is in the condition of many other bodies which are known to possess two kinds of colours,—viz., a certain colour which is transmitted, and another colour quite different from the first, which is reflected. Water appears of a *blue* colour by *reflection;* and some imagine it to be of a *green* colour by *transmission*. Thus a portion of the white light which went to illuminate the water is dispersed by the water in all directions, after having received a *blue* tint therefrom; and it is this dispersed light which constitutes the *proper colour* of liquids. As to the other rays irregularly transmitted, their passage across the water makes them green, and intensely so in proportion as the traversed mass is thick.

Now with regard to the white sand at the bottom of a sea not very deep, this sand receives the light only through a stratum of water; the light then is green when it strikes the bottom, and it is with this tint it is reflected; and in the second passage which the luminous rays make through the same liquid in returning from the sand to the open air their green tint sometimes so predominates, that it prevails over the blue. This, perhaps, may be the whole secret, which, to the seaman, is, in *calms*, the certain and invaluable index of great depths.

But when the ocean is *agitated*, the waves suitably elevated may convey to the eye so large a quantity of *transmitted or green rays*, that the reflected blue ones shall be entirely concealed. The elevated waves of the ocean form a kind of prism; no wave is ever solitary; the continuous waves advance nearly in parallel directions. When two waves, therefore, approach a vessel, a portion of the light which the anterior face of the second wave reflects, traverses the first, is there refracted from above downwards, and thus arrives at the observer placed upon the deck. Again, then, we see transmitted light, light which is consequently made green, reach the eye at the same time with the common blue tints; but these are the phenomena of great depths over white sand produced without deep water, and the green colour of the sea arises from the predominance of the transmitted colour over the reflected colour.

Some circumstances, however, will doubtless be observed which prevent these prism waves from always producing the same effects. Some variation in the line of the sea may be expected upon a change of the wind. Upon the lakes of Switzerland, this phenomenon is apparent; it remains to be seen whether it is so upon the wide ocean.

It has long been imagined that the blue colour of the sky has had an important influence on the colour of the ocean. It must be remembered, however, that the blue rays of the atmosphere do not return from the water to the eye, till after they have been regularly reflected.

An apparently dark coloured sea (says Professor Jameson,) is a common prognostic of an approaching storm; not that the water is really blacker than usual, but because the dark colour of the clouds indistinctly seen in, or reflected from, the waves, is mistaken for the colour of the sea itself. Whatever other colour the sky happens to wear has a greater or less influence on the appearance of the ocean; thus, red clouds seem to tinge it red, &c. On some occasions the edges of the waves, by refracting the solar beams like a prism, exhibit all the brilliant colours of the rainbow, which is still more nearly imitated by the refraction of the rays in the spray. Not unfrequently an indistinct image of the neighbouring coast, reflected from the ruffled surface, is mistaken for the colour of the water.

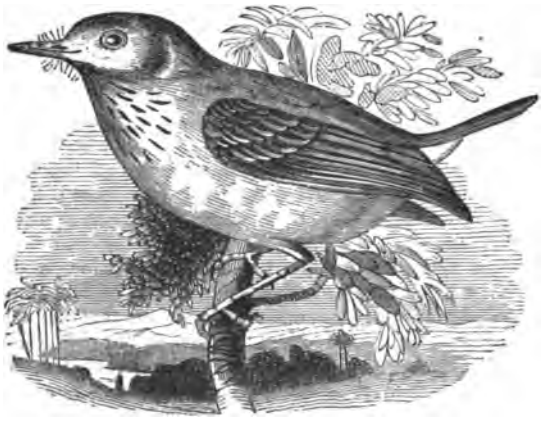
With the intention of being freed as much as possible, from the influence of reflection, when studying the colours of the ocean, some able navigators have recommended the plan of examining it through the trunk of the ship's rudder. By this method the water exhibits in some points of view beautiful violet tints; but these hues are illusory; they are only the effect of contrast; they proceed from atmospheric light feebly reflected in an almost perpendicular direction, and coloured by their approximation to the transmitted green colours which almost invariably surround the rudder.

All attempts to investigate the colour of water must be begun when it is seen by transmission, with the aid of diffused light. Those who will recal to recollection the pre-eminently green hue of the cut edge of a crystal glass, even when this glass is only illuminated in front and perpendicularly, will perceive all the importance of this remark. The observer should be supplied with a large hollow ice prism: the refracting angle equal to 45°. This prism is to be plunged partially into water, to that the edge of its refracting angle shall be downwards and horizontal; one of the faces of this angle, viz., that which is most exposed, is to be vertical, whence it will result as a necessary consequence that the other face will be inclined to the horizon at an angle of 45°.

When the objects are thus arranged, the light which moves horizontally in the water at a fraction of an inch below the surface, that which constitutes the colour of its cutting edge, so to speak, will strike perpendicularly the vertical ice of the prism; it will penetrate into the interior of the instrument, will traverse the small quantity of air which it encloses, will reach the second plate of ice, and will there be reflected vertically from below upwards. In looking upon this inclined ice, the observer then may judge of the proper colour which the water has by refraction, quite as well as if his eye was in the liquid. In this form the experiment is simple and easy, and it is hoped that numerous observations will be made not only with sea water, but also with that of lakes and rivers.

It is desirable that the hollow prism be enclosed at its upper part by a piece of ice enclosed in glass, and having parallel faces. This will prevent the apparatus from being filled with liquid.

THE GREAT-HEADED TODY.



WE have lately noticed some of those beautiful and useful little birds common to tropical countries, and known under the general name of Fly-catchers*. We shall now briefly remark on a small group of birds, sometimes confounded with the fly-catchers and fly-hunters, but really distinct from both.

These are the Todies (*Todus*), small American birds confined to the warmer portions of the new world, and holding a similar place among the feathered tribes of the west, to that which the king-fisher holds among the birds of our own land. The most universal character by which these birds may be distinguished is, their flat, elongated bill, the sides of which are bristled, though these bristles are short and weak, and in some of the species scarcely discernible. The wings and tail are short, and the form in which they terminate marks the difference between the several species. The structure of the feet is subject to much variation. There are three toes to the front, and one to the rear; the inner front toe is united to the middle one as far as the second joint, and the external as far as the third. These birds nestle on the ground near the water, after the manner of king-fishers. According to Vieillot the female makes her nest in dry earth, but prefers soft friable sandstone. She makes choice, for this purpose, of ravines and small crevices, and digs with her bill and claws, forming a rounded hole, widened at the extremity, where she places leaves, moss, and cotton, with considerable skill. The eggs are four or five in number, of a grey colour spotted with brown. The female bird sits with great constancy, and the male is assiduous in supplying her wants. Both show great attachment to their young when they appear. The male bird is said by some writers to have an agreeable song at the pairing time; but by others this is denied. In general these birds are remarkable for their silence. They are pretty birds, feeding on insects, and perfectly inoffensive. Though their wings are short, their flight is rapid and straight-forward. They perch sometimes in trees and bushes, and sometimes on stones and elevated spots of earth; but their colour is so much like that of the foliage of trees that they are seen only in the latter situations. Though not very rare, they usually dwell in wild and solitary places, which is probably the reason of their being by no means frequent in the collections of Europe.

The most commonly described species is the green tody, which is certainly the most beautiful of the group, as our account of it will presently show: but we have chosen for the subject of our illustration the great-headed tody described by Swainson, nearly in the following terms:—

The general plumage of the great-headed tody above is olive green, with a strong fawn-coloured tinge in front of the head and on the crown. This colour is separated from the back by the upper neck, being entirely of the same ash-colour as the sides, chin, and throat; but these two latter parts are striped with white; the rest of the under-plumage is yellow, tinged with olive, and striped with ash-colour on the breast and flanks. The sides of the head and base of the ear-feathers are whitish; the latter being ornamented with a broad black band; the wings and tail are brown, the feathers margined with yellowish; the tail-feathers even, but remarkably narrow, with their tips more pointed than in any of the other todies.

The most beautiful of all the todies, and of the whole of this family, as we have said, is the green tody. It is remarkable for the richness of its colouring, and Swainson remarks that its natural history, differing as it does in colour from all its congeners, must possess great peculiarities, but unfortunately we know but little of its habits and economy. It is said, that in resting it always sits with the head and bill pointing upwards, and it is thought that the bright red spot on its throat, acts, in such circumstances, as a snare to attract insects (just as a candle attracts moths), and they only discover their danger when it is too late to escape the sudden dart of the bird. This species inhabits some of the West India Islands, and is known in many of the equatorial regions of South America. The predominant colour of the upper parts of the bird is a rich parrot-green. The under plumage is more varied, the whole extent of the skin being occupied with a patch of the richest scarlet, bordered by a stripe of white, while the side feathers of the breast are of a delicate rose-colour, and the under part of the tail yellow. The total length is three inches and three-quarters. This beautiful little bird is called, by the natives of St. Domingo, the ground-parrot, or parakeet, from its habit of being almost always on the ground. It catches insects with much address, like the fly-catchers, though its habits, with regard to its nesting-place, resemble the king-fisher.

The black-headed tody is rather smaller than the green tody, especially in the head. The upper plumage is very dark ash-colour, with a few shades of olive. The head, wing-covers, and tail, are black,—all the under parts are yellow. This species inhabits Brazil and Cayenne.

Respecting the food of the todies in general, we have the assertion of Lesson, that it consists of insects which they catch in the mud or in the water. Their wide and flattened bill, he observes, furnished with bristles, permits them to sift the mud and retain their prey: they also seek for insects under the moss, and on the banks of small streams. Sloane, speaking of the green tody, says, it is one of the most beautiful birds of its size that he ever beheld. "It loves," he adds, "melancholy places, and scarce will stir from any one till they take it." Brown also speaks of it as a very familiar and beautiful bird, which will allow a person to approach within a few feet of it, and look for minutes together at it before it moves. He does not agree with some of our other authorities with respect to its retired habits, but says:—"It keeps much about houses in country parts, flies very slowly, and probably may be easily tamed."

* See *Saturday Magazine*, Vol. XXI., p. 161.

WHERE IS WISDOM TO BE FOUND?

WHERE the eye of Pity weeps,
And the sway of Passion sleeps,
Where the lamp of Faith is burning,
And the ray of Hope returning,
Where the "still small voice" within
Whispers not of wrath or sin,
Resting with the righteous dead—
Beaming o'er the drooping head—
Comforting the lowly mind,
Wisdom dwelleth—seek, and find!

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THE

Saturday Magazine.

Nº 699. MAY 27TH, 1843. { PRICE ONE PENNY.

FRESCO PAINTING.

GROTESQUE FRESCO. *(From the Gallery of the Palace of the Vatican.)*

In the year 1841, a committee was appointed by the House of Commons to inquire into and report upon the state and prospects of the English school of Painting, the chief object being to determine upon a plan whereby the architect and the artist might work in conjunction with each other for the decoration of the new Houses of Parliament. In the report of the committee the employment of fresco painting was recommended; but the necessity of further inquiry on the subject was suggested. This led to the appointment of a royal commission of Fine Arts, the members of which in the spring of 1842 presented their report * to Her Majesty, in which they stated their inability to satisfy themselves that the art of fresco painting had hitherto been sufficiently cultivated in this country to justify them in at once recommending that it should be employed in the decoration of the new Houses of Parliament; but in order to assist them in forming a judgment on this matter, it was proposed that artists should be invited to enter into a competition in cartoons. A public announcement was accordingly made, inviting British artists to compete for certain pecuniary prizes, by submitting cartoons to the notice of judges to be appointed to decide on the relative merit of the works. It was stipulated that the drawings should be executed in chalk, or in charcoal, or some similar material, but without

* An appendix is added to this report, by Mr. Eastlake, in which is collected much valuable information on the subject of fresco painting.

colours; the subjects to be selected from British History, or from the works of Spenser, Shakspere, or Milton; and the figures to be not less than the size of life.

Although the subjects for the exercise of the artist's skill were thus, to a certain extent, defined, it was expressly stated by the commissioners that such limitation was not meant to imply the adoption of any particular scheme for the decoration of the Houses of Parliament. The object in fact was to encourage among artists that which is so indispensable in fresco painting, namely, "precision of drawing, founded on a knowledge of the structure of the human figure; a treatment of drapery uniting the imitation of nature with a reference to form, action, and composition, and a style of composition less dependent on chiaroscuro than on effective arrangement."

As the time is now arrived for the exhibition of these cartoons to the public (Westminster Hall being the place destined for their reception), it may be interesting to give a popular notice of fresco painting; an art, which it is hoped is now about to be introduced into this country under the most favourable circumstances of patronage.

Respecting the origin of the term fresco there are two opinions: according to some the term is said to have been adopted because the practice of it is used in the open air. Thus in the Italian language, *andare al fresco* signifies "to take the air;" or "to walk abroad in the air;" but a more probable explanation is to be found in another meaning of the word fresco, viz., "new," or "fresh," as applied to the state of the plaster in which it is wrought. The artist traces his design, colours it, and completely finishes in one day so much of his picture as will occupy the wet plaster ground that has been prepared for him, so that when the ground is dry he may not retouch any part of his work. This is the characteristic distinction of painting in fresco—a method by which the painting is incorporated with the mortar, and drying along with it becomes extremely durable, and brightens in its tones and colours as it dries.

It will therefore be readily conceived that the artist in fresco has to encounter difficulties of no ordinary kind; a few of them are thus noticed by a writer in REES's *Cyclopædia*:—

From the necessity there is in the progress of this style of art, that it should be executed with rapidity, and from the impossibility of retouching it without injuring the purity of the work; the artist, unless he be endowed with very extraordinary powers of imagination and execution indeed, is obliged to prepare a finished sketch of the subject, wrought to its proper hue and tone of colour, and so well digested, that there may be no necessity for making any essential alterations in the design. This, which is a very useful mode of proceeding in all fine works of painting, is absolutely indispensable in fresco, to those who are not determined to give the rein to their ideas, and leave as perfect whatever may first present itself. There is no beginning in this, by drawing in the whole of the parts at one time, and correcting them at leisure, as is the custom with oil-painters, who may therefore proceed to work without a sketch; here all that is begun in the morning must be completed in the evening; and that almost without cessation of labour, while the plaster is wet; and not only completed in form, but also, a difficult, nay almost impossible task, without a well prepared sketch, must be performed, viz., the part done in this short time must have so perfect an accordance with what follows, or has preceded, of the work, that when the whole is finished, it may appear as if it had been executed at once, or in the usual mode, with sufficient time to harmonize the various forms and tones of colour. Instead of proceeding by slow degrees to illuminate the objects, and increase the vividness of the colours, in a manner somewhat similar to the progress of nature in the rising day, till at last it shines with all its intended effect, which is the course of painting in oil, the artist working in fresco must at once rush into broad daylight, at once give all the force in light, and shade, and colour, which the nature of his subject requires, and this without the assistance (at least in the commencement) of contrast to regulate his eye; so that here, as has been said, a well digested and finished sketch seems indispensably requisite.

The custom of decorating walls with paintings is very ancient. Those discovered by Belzoni, among the royal tombs of Egypt, prove the existence of the art among the Egyptians many centuries before the Christian era. There is also abundant evidence that it was practised by the Etruscans and Romans. But the more common practice up to the time of Augustus seems to have been to paint the walls of houses of one single colour, and to relieve this with fantastic ornaments. According to Pliny, Augustus was the first to suggest the covering of whole walls with pictures and landscapes. About the same time a painter named Ludius invented that style of decoration, now called *arabesque* or *grotesque*, many beautiful examples of which have been discovered at Pompeii and other places. The invention of the Arabesque style, as its name implies, has been improperly claimed for the Arabians of Spain; whose religion forbidding the representation of animals, they employed foliage, stalks, stems, tendrils, flowers, and fruit, in a variety of forms and combinations, with which they adorned the surfaces of their buildings. Hence the fanciful combinations of natural objects occupying a flat surface came to be called Arabesque, although it differed so much from the Mohammedan compositions as to contain animals real or fabulous. That the term is badly chosen, especially as applied to the fanciful enrichments on the walls of Pompeii, &c., will be seen from the fact that such ornaments were invented and executed long before the sons of Ishmael had learned to draw. The term grotesque is less objectionable: it is derived from the subterranean rooms (grotte) in the baths of Rome, in which those specimens of ancient art were found, from which Raphael derived the plan of the beautiful frescos which adorn the piers and pilasters of the arcaded gallery of the palace of the Vatican, called, in honour of the artist, "Le Logge di Raffaelle."

The practice of Fresco Painting may be conveniently considered under the following heads:—1. The Cartoon. 2. The preparation of the wall. 3. The process of painting. 4. The colours and implements. The methods as adopted by different artists are of course subject to variation; but as general principles are not altered by variations in those details which conduce to the same end, so the following may be taken as an accurate exposition of the practice of the art.

1. *The Cartoon.* Since the artist cannot without injury retouch a fresco painting, it is necessary that every part of the design be decided on by preparatory sketches finished of the full size, from which the fresco may be transferred, by tracing, to the wall. When the painting is very large, the whole composition of the full size is sometimes divided into two or more cartoons.

In the preparation of a cartoon, a strong cloth is stretched on a frame, as if to be prepared for painting; paper is then firmly glued on the cloth. When this is dry, a second layer of paper is attached by glue. The edges of the separate sheets, where they overlap, are scraped, so as to preserve an even surface. The surface is then prepared for drawing with size and alum*. The drawing is made with charcoal, and when finished is fixed by wetting the cloth at the back with cold water, and then steaming the drawing in front. The steaming is performed with a tea-kettle with two or three spouts, kept boiling by the flame of a spirit-lamp; by this means the charcoal is incorporated with the melted glue, and a solid surface like that of a picture is produced.

From this finished drawing the outline is traced on oiled paper. As much of this working outline as can

* The term Cartoon is derived from *cartone*, the augmentative of *carta*, the Italian for *paper*.

be finished in one painting is then nailed to the wet wall, and the forms are again traced with a sharp point, whereby an indented outline is produced on the soft plaster. According to another method, the paper to be applied to the wall is placed behind and in close contact with the finished cartoon; the outlines of the latter are then pricked, and a similar pricked outline is thus produced on the paper behind. This pricked paper is then made the working drawing; it is fastened to the wall, and dusted with a little bag filled with black or red dust; this leaves a dotted outline on the wall. This method is sometimes adopted for small works, and the advantage of it is that it leaves the surface of the plaster undisturbed. The first mode is, however, generally preferred; since it insures the best and most decided outline, and preserves the finished cartoon uninjured.

Cartoons prepared for fresco may be seen in the National Gallery: those at the head of the staircase are by Agostino Caracci. In one of these (the Triumph of Galatea) the pricked outline is very apparent; as also in the fragment of the Cartoon by Raphael, (the Murder of the Innocents) also in the National Gallery. In many celebrated Italian frescos the indented outline, produced by tracing, is apparent.

In addition to the cartoon it is desirable to have a coloured sketch of the whole composition.

2. *The preparation of the Wall.* The greatest obstacle to the permanence of fresco painting is damp: hence, if the wall to be painted is covered with old mortar, the ingredients of which are unknown, this coat should be entirely removed until the solid brick or stone is laid bare. The rough coat then applied is composed of river-sand and lime, and of such thickness as is generally used in preparing the walls of dwelling-houses. The surface of this coat should be rough, but not uneven. Thus prepared, the wall should be suffered to become perfectly dry and hard; the longer it remains in this state the safer it will be, especially if the lime used was in the first instance fresh. In that case two or three years should elapse before the process of painting is commenced.

The preparation and seasoning of the lime is one of the essential conditions of fresco painting. At Munich it is made and kept as follows:—A pit is filled with clean burnt limestone which is slaked, and then stirred continually till it is reduced to an impalpable consistence. The surface having settled to a level, clean river-sand is spread over it to the depth of a foot or more, so as to exclude the air, and, lastly, the whole is covered with earth. It is allowed to remain thus for at least three years before it is used, either for the purposes of painting (lime being the white pigment) or for coating the walls.

The last preparation for painting on the mortar is as follows:—The surface is wetted with pure water, till it ceases to absorb. A thin coat of plaster is then spread over that portion only which is to be painted: the surface of this coat should be moderately rough. As soon as it begins to set (*i.e.* in about ten minutes or so, according to the temperature) a second thin coat is laid on, somewhat fatter, that is, with more lime and less sand. The plaster is laid on, and the surfaces are smoothed with a wooden trowel. Some painters like to work on a perfectly smooth surface, in which case the last coat is polished by applying a piece of paper on the surface and passing the trowel over it. When a small amount of roughness is required, a dry brush, or a piece of beaver nap attached to the trowel, is passed over the plaster in all directions.

As you brew, you must bake.

He who brews unskilfully, will have bad yeast; and bad yeast will make bad bread. The ill consequences of one imprudent step will be felt in many an after step.

EASY LESSONS ON REASONING.

Lesson XI.

§ 1. An Argument [or Act of Reasoning expressed in words] is defined "an Expression in which, from something laid down [assumed as true] something else is concluded to be true, as following necessarily [resulting] from the other." That which follows from the other, is called (as was formerly explained) the "*Conclusion;*" and that from which it follows, the "Premises;" or in the language of some writers, the "Antecedent."

The above is the strict technical definition. But in ordinary language the word "Argument" is often employed to denote the *Premises* alone; or, sometimes that one of the Premises which is *expressed*, when the other is *understood:* as when one speaks of proving so and so *by* this or that *argument;* meaning, by such and such a Premise.

And you may observe, by the way, that of the two Premises, the *Major* (formerly explained) is, in common discourse often called the "Principle," and the Minor-premise, the "Reason."

Frequently also in common discourse "an Argument" is used to signify a "Series of arguments," leading ultimately to the Conclusion maintained.

An Argument if stated in such a regular form that "its conclusiveness [its being really an Argument] is apparent from the mere *form of expression alone,*" (independently of the meaning of the words) is then called a "Syllogism." As, "Every X is Y*; Z is X, therefore Z is Y:" in which, as was formerly explained, the truth of the Conclusion,—assuming the Premises to be true,—must be admitted, whatever Terms you may make X, Y, and Z, respectively, stand for.

You are to remember therefore that a Syllogism is not (as some have imagined) a *peculiar kind* of Argument; but only a certain *form* in which *every* Argument may be exhibited.

§ 2. One circumstance which has tended to mislead persons as to this point, is, that in a Syllogism we see the Conclusion following *certainly* [or *necessarily*] from the Premises; and again, in any apparent-syllogism which on examination is found to be (as you have seen in some of the examples) not a *real* one [not "valid"] the Conclusion *does not follow at all;* and the whole is a mere deception. And yet we often hear of Arguments which have *some* weight, and yet are not quite *decisive;* —of Conclusions which are rendered *probable*, but not absolutely *certain* &c. And hence some are apt to imagine that the *conclusiveness* of an Argument admits of *degrees;* and that sometimes a conclusion may, *probably and partially*,—tho' not *certainly and completely*—follow from its Premises.

This mistake arises from men's forgetting that the *Premises themselves* will very often be *doubtful;* and then, the Conclusion also will be doubtful.

As was shewn formerly, one or both of the Premises of a perfectly valid Syllogism may be utterly false and absurd: and then, the Conclusion, tho' inevitably following from them, may be either true or false, we cannot tell which. And if one or both of the Premises be merely probable, we can infer from them only a *probable* conclusion; tho' the *conclusiveness*,—that is, the connexion between the Premises and the Conclusion—is perfectly certain.

For instance, assuming that "every month has 30 days" (which is palpably false) then, from the minor-premise that "April is a month," it follows (which happens to be true) that "April has 30 days:" and from the minor-premise that "February is a month" it follows that "February has 30 days;" which is false. In each case the conclusiveness of the Argument is the same; but in every case, when we have ascertained the falsity of one of the Premises, we know nothing (as far as *that argu-*

* See above. Lesson ix. § 4.

ment is concerned) of the truth or falsity of the Conclusion.

§ 3. When however we are satisfied of the falsity of some *Conclusion*, we may, of course, be sure that (at least) one of the Premises is false; since if they had both been true, the Conclusion would have been true.

And this—which is called the "*indirect*" mode of proof—is often employed (even in Mathematics) for establishing what we maintain: that is, we prove the *falsity* of some Proposition (in other words, the *truth* of its *contradictory*) by shewing that if assumed as a Premise, along with another Premise known to be true, it leads to a Conclusion manifestly false. For tho', from a false assumption, either falsehood or truth may follow, from a true assumption, truth only can follow.

Let us now look to the case of a doubtful Premise. Suppose it admitted as *certain* that "a murderer deserves death," and as *probable* that "this man is a murderer," then, the Conclusion (that "he deserves death") is probable in exactly the same degree.

But tho' when one Premise is certain, and the other, only probable, it is evident that the Conclusion will be exactly as probable as the *doubtful Premise*, there is some liability to mistake, in cases where *each* Premise is merely probable. For tho' almost every one would perceive that in this case the probability of the Conclusion must be *less* than that of either Premise, the *precise degree* in which its probability is diminished, is not always so readily apprehended.

And yet this is a matter of exact and easy arithmetical calculation. I mean, that, *given* the probability of each Premise, we can readily calculate, and with perfect exactness, the probability of the Conclusion.

As for the probability of the Premises themselves that are put before us, that, of course, must depend on our knowledge of the *subject-matter* to which they relate. But supposing it agreed what the amount of probability is, in each Premise, then, we have only to state that probability in the form of a *fraction*, and to *multiply* the two fractions together; the product of which will give the degree of probability of the Conclusion*.

§ 4. Let the probability, for instance of each Premise be supposed the same; and let it, in each, be $\frac{2}{3}$: [that is, let each Premise be supposed to have two to one in its favor; that is to be twice as likely to be true as to be false] then, the probability of the Conclusion will be *two thirds of two thirds*; that is $\frac{4}{9}$;—rather less than one half. For since twice two is four, and thrice three, nine, the fraction expressing the probability of the Conclusion will be four ninths.

For example, suppose the Syllogism to be "A man who has the plague will die of it;" (probably) "this man has the plague;" (probably) therefore, (probably) "he will die of it." We are—suppose—not certain of either Premise; tho' we think each to be probable: we have judged—suppose,—that of 9 persons with the symptoms this man exhibits, two thirds,—that is, six—have the plague: and again, that *two thirds* of those who have the plague—that is, *four out of six*—die of it: then, of 9 persons who have these symptoms, 4 may be expected to die of the plague.

Again, "Every X is Y; ($\frac{3}{4}$) Z is X ($\frac{2}{3}$) therefore Z is Y" ($\frac{6}{12}=\frac{1}{2}$) let the fractions written after each Premise express the degree of its probability; and the result will be that which is given as the probability of the Conclusion.

For instance "A Planet without any atmosphere is uninhabited: the moon is a planet without any atmosphere; therefore the moon is uninhabited:" supposing these Propositions to be those represented in the former example (of X, Y, and Z) then the probability that "the moon is uninhabited," will be two thirds of three fourths; or one half; since $\frac{2}{3}$ multiplied by three fourths gives $\frac{6}{12}=\frac{1}{2}$.

In the examples just given, you will observe that the probability of each Premise has been supposed *more* than $\frac{1}{2}$; that is, each has been assumed to be *more likely* to be true than not; and yet there is, for one of these Conclusions, only an even chance; and for the other, less. The supposed patient is supposed to be rather *less* likely to die of the plague than not.

And of course when there is a *long train* of reasoning,—the Conclusion of each argument being made one of the Premises of a succeeding one,—then, if a number of merely-probable Premises are introduced the degree of probability diminishes at each successive stage.

And hence it may happen, in the case of a very long train of reasoning, that there may be but a slight probability for the ultimate Conclusion, even tho' the Premises successively introduced, should be, some of them, quite certain, and the rest, more probable than not.

And hence, we often have to employ several distinct trains of arguments, each tending separately to establish some degree of probability in the Conclusion.

§ 5. When you have two (or more) distinct arguments, each, separately, establishing as probable, the same conclusion, the mode of proceeding to compute the total probability, is the *reverse* of that mentioned just above. For, there,—in the case of two probable premises,—we consider what is the probability of their being *both* true; which is requisite in order that the conclusion may be established by them. But the case of a conclusion *twice* (or oftener) proved probable, by separate arguments, is like that of aiming at a mark at which you are allowed more than one shot; so that if these do not *all* miss, the mark is hit. You consider, therefore, what is the probability of *both* these indications of truth being *combined* in favor of any conclusion that is *not* true.

Hence the mode of computation is, to state (as a fraction) the chances *against* the conclusion as proved by *each* argument; and to multiply these fractions together, to ascertain the chances against the conclusion as resting on *both* the arguments combined; and this fraction being subtracted from unity, the remainder will be the probability *for* the conclusion.

For instance, let the probability of a conclusion as established by a certain argument, be $\frac{1}{3}$: (suppose,—that this patient will die of his disorder, from its turning out to be the plague) and again, of the same conclusion as established by another argument, $\frac{1}{4}$: (suppose,—of his dying of the disease, on its turning out to be some different one) then, the chances *against* the conclusion in each case, respectively, will be, $\frac{2}{3}$ and $\frac{3}{4}$; which multiplied together give $\frac{1}{12}$ or $\frac{1}{2}$ *against* the conclusion. The probability therefore *for* the conclusion as depending on these *two* arguments jointly, (*i. e.*, that the patient will die of the disorder) will be $\frac{1}{2}$, or two to one.

As for the degree of probability of each Premise, *that*, as we have said, must depend on the subject-matter before us; and it would be manifestly impossible to lay down any fixed rules for judging of this. But it would be absurd to complain of the want of rules for determining a point for which it is plain no precise rules can be given; or to disparage, for that reason, such rules as *can* be given for the determining of another point. Mathematical Science will enable us—*given*, one side of a triangle and the adjacent angles,—to ascertain the other sides; and this is acknowledged to be something worth learning, altho' mathematics will not enable us to answer the question which is sometimes proposed in jest, of "how long is a rope?"

Men are often misled in practice by not attending to these circumstances, plain as they are, when pointed out.

* Those who are at all familiar with Arithmetic will hardly need to be reminded, that,—since a *fraction* is *less* than a unit,—what is called (not strictly, but figuratively) *multiplying* anything by a fraction, means, taking it *less than once:* so that, for instance $\frac{1}{2}\times\frac{1}{2}$, that is a half multiplied (as it is called) by two-thirds, means, two-thirds of a half; *i. e.*, $\frac{2}{3}$ or $\frac{1}{3}$.

§ 6. It has been already explained that the Maxim [or Dictum] applicable to every Argument when stated in the clearest form, is, that "whatever is predicated universally of any term, may be predicated in like manner [affirmed, or denied, as the case may be] of whatever is comprehended under that term:" and that this consequently is the "*Universal Principle*" of Reasoning.

And you may observe that this Dictum [or Maxim] may in fact be regarded as merely the *most general* statement of "*An Argument*,"—not, this or that individual argument; but *any and every* "Argument, abstractedly."

For instance, if you say "this man is contemptible because he is a liar," you evidently mean to be understood, "every liar is contemptible; this man is a liar; therefore he is contemptible." Now if you so far *generalize* this Syllogism as to omit all consideration of the very terms actually occurring in it, *abstracting*, and attending solely to, the *form* of expression, you will have "Every X is Y; Z is X; therefore Z is Y" and then if you proceed to make a still further abstraction, saying, —instead of "Every X"—"*any-term-distributed*," and instead of "Y"—"anything-whatever affirmed of that term," and so on, you will have, in substance, the very "Dictum" we have been speaking of: which may be separated into three portions, corresponding to the three Propositions of a Syllogism: thus,

1. "Anything-whatever (as "Y") affirmed of a *whole class* (as "X")

2. under which class something else (as Z) is comprehended,

3. may be affirmed of that (namely "Z") which is so comprehended;"

These three portions into which the Dictum has been separated, evidently answer to the Major-premise, Minor-premise, and Conclusion, of the Syllogism given above. And it is plain that the like explanation will apply (if "denied" were put for "affirmed") to a Syllogism with a *negative* conclusion. So that the "Dictum" is in fact, as we have said, merely the most abstract and general form of stating the *Act of Reasoning*, universally.

§ 7. Some persons have remarked of this "Dictum" (meaning it as a disparagement) that it is merely a somewhat circuitous *explanation* of *what is meant by a Class*. It is, in truth, just such an explanation of this as is needful to the student, and which must be kept before his mind in reasoning. For you are to recollect that not only every Class [the Sign of which is, a "Common term"] comprehends under it an indefinite number of individuals, —and often of other Classes—differing in many respects from each other, but also that most of those individuals and classes may be referred, each, to an indefinite number of classes, (as was formerly explained) according as we *chuse to abstract* this point or that, from each.

Now to *remind* one, on each occasion, that so and so is referable to such and such a Class, and that the Class which happens to be before us comprehends such and such things,—this, is *precisely all that is ever accomplished by Reasoning*.

For you may plainly perceive, on looking at any of the examples above, that when you assert both the Premises taken in conjunction, you have, virtually, implied the Conclusion. Else indeed it would *not* be impossible (as it is) for any one to deny the Conclusion, who admits both Premises.

§ 8. Hence, some have considered it as a disparagement to a Syllogism (which they imagine to be *one kind* of Argument) that you can gain no *new truth* from it; the Conclusions it establishes being in fact known already, by every one who has admitted the Premises.

Since however a Syllogism is not a certain distinct kind of argument, but *any* argument whatever, stated in a regular form, the complaint, such as it is, lies against Reasoning altogether.

And it is undeniable that no *new truth*,—in one sense of the word—(and that, perhaps, the strictest sense) can ever be established by *Reasoning alone*; which merely unfolds as it were, and develops, what was, in a manner, wrapped up and implied in our previous knowledge; but which we are often as much unaware of, to all practical purposes, till brought before us, as if it had been wholly beyond our reach.

New truths,—in the strictest sense of the word—that is, such as are not implied in anything that was in our minds before,—can be gained only by the use of our senses, or from the reports of credible narrators, &c.

An able man, may, by patient Reasoning, attain any amount of mathematical truths; because these are all implied in the Definitions. But no degree of labour, and ability, would give him the knowledge, by "*Reasoning*" *alone*, of what has taken place in some foreign Country; nor would enable him to know, if he had never seen, or heard of, the experiments, what would become of a spoonful of salt, or a spoonful of chalk, if put into water, or what would be the appearance of a ray of light when passed thro' a prism.

§ 9. These two modes of arriving at any truth are perceived by all men as distinct. And they are recognized in the expressions in common use. The one is usually called "*information*;" the other "*instruction**." We speak of trusting to the *information* (not, the *instruction*) of our senses. Any one who brings *news* from any place, or who describes some experiments he has witnessed, or some spot he has visited, is said to afford us *information*

A Mathematician again, a Grammarian,—a Moralist —any one who enters into a useful discussion concerning human life,—any one in short who satisfactorily *proves* anything to us by *reasoning*,—is said to afford us *instruction*.

And in conversing with any one who speaks judiciously, one sometimes says "very true!" or "that is a very just remark: that never struck me before &c." In these and suchlike expressions, we imply both that what he says is not *superfluous*, but valuable and important, and also that we are conscious of having ourselves possessed, in our own previous knowledge, the germ of what he has developed, and the means of ascertaining the truth of what he has said; so as to have a right to bear *our testimony to it*.

But when any one gives us *information* about a foreign Country, &c. tho' we may fully *believe* him, and be interested by what he tells us, we never think of saying "very true!" or "you are quite right." We readily perceive that in this case the knowledge imparted, is new to us in quite another sense; and is what no *reasoning* alone could have imparted; being not *implied* in anything we knew already.

These two modes of attaining what are, in different senses, new truths, (and which of course, are often *mixed* together) may be illustrated by two different modes in which a man may obtain an addition to his wealth. One man, suppose, has property to a certain value, *bequeathed* to him: another *discovers* on his estate a mine of equal value. Each of these is enriched to the same degree. But the former of them acquires what he had, before, *no right* to: the latter merely comes to the knowledge and use of that which was before, legally, his property; tho', till discovered, it brought him no advantage.

Any mode of attaining knowledge, distinct from *Reasoning*, is, of course, foreign from the present inquiry.

* It is not meant that this is the *only* sense of these words.

A SLOW fire makes sweet malt.

It is observed that a fierce fire half burns the malt, and destroys most of its sweetness. In like manner, everything that is done with impetuous violence and hurry, is the worse done.

THE SEA.

A SUMMER AND WINTER VIEW.

TURN to the watery world!—but who to thee
(A wonder yet unviewed) shall paint—the Sea!
Various and vast, sublime in all its forms,
When lulled by zephyrs, or when roused by storms,
Its colours changing, when from clouds and sun
Shades after shades upon the surface run;
Embrowned and horrid now, and now serene,
In limpid blue, and evanescent green;
And oft the foggy banks on ocean lie,
Lift the fair sail, and cheat th'experienced eye.
Be it the Summer-noon: a sandy space
The ebbing tide has left upon its place;
Then just the hot and stony beach above,
Light twinkling streams in bright confusion move;
(For heated thus, the warmer air ascends,
And with the cooler in its fall contends.)
Then the broad bosom of the ocean keeps
An equal motion; swelling as it sleeps,
Then slowly sinking; curling to the strand,
Faint, lazy waves o'ercreep the ridgy sand,
Or tap the tarry boat with gentle blow,
And back return in silence, smooth and slow.
Ships in the calm seem anchored; for they glide
On the still sea, urged solely by the tide;
Art thou not present, this calm scene before,
Where all beside is pebbly length of shore,
And far as eye can reach, it can discern no more.
Yet sometimes comes a ruffling cloud to make
The quiet surface of the ocean shake;
As an awakened giant, with a frown,
Might show his wrath, and then to sleep sink down.
View now the Winter-storm! above, one cloud,
Black and unbroken all the skies o'ershroud;
Th'unwieldy Porpoise through the day before
Had rolled in view of boding men on shore;
And sometimes hid, and sometimes showed his form,
Dark as the cloud, and furious as the storm.
All where the eye delights, yet dreads to roam,
The breaking billows cast the flying foam
Upon the billows rising—all the deep
Is restless change; the waves so swelled and steep,
Breaking and sinking, and the sunken swells,
Nor one, one moment, in its station dwells:
But nearer land you may the billows trace,
As if contending in their watery chase;
May watch the mightiest till the shoal they reach,
Then break and hurry to their utmost stretch;
Curled as they come, they strike with furious force,
And then re-flowing, take their grating course,
Raking the rounded flints, which ages past
Rolled by their rage, and shall to ages last.
Far off the Petrel, in the troubled way
Swims with her brood, or flutters in the spray;
She rises often, often drops again,
And sports at ease on the tempestuous main.
High o'er the restless deep, above the reach
Of gunner's hope, vast flights of Wild-ducks stretch;
Far as the eye can glance on either side,
In a broad space and level line they glide;
All in their wedge-like figures from the North,
Day after day, flight after flight go forth.
In-shore their passage tribes of Sea-gulls urge,
And drop for prey within the sweeping surge
Oft in the rough opposing blast they fly
Far back, then turn and all their force apply,
While to the storm they give their weak complaining cry
Or clap the sleek white pinion to the breast,
And in the restless Ocean dip for rest.—CRABBE

ANGER is, at first, an offence taken at an ill behaviour, an emotion of mind raised at the sense of injuries done to us or to others. The use of anger is to stir us up to self-preservation, and to put us upon our guard against injuries. When it has done this, it has performed all that belongs to it; for what measures we may take to effect this, how we may secure ourselves, and how we should behave towards those who offend us, these are points concerning which we must not consult our passions, but our reason; which was given us to moderate our passions, and to prescribe laws for our actions.—JORTIN.

THE WILLOW WARBLER.

A REMARKABLE instance of the attachment of the Willow Warbler to its nest, is thus recorded in the *Field Naturalist* by a lady. "In the spring of 1832, walking through an orchard, I was attracted by something on the ground in the form of a large ball, and composed of dried grass. I took it up in my hands, and upon examination found it was a domed nest of the Willow Wren, *Silvia Trochilus*. Concerned at my precipitation, I put it down again as near the same place as I could suppose, but with very little hope that the architect would ever claim it again after such an attack. I was, however, agreeably surprised to find, next day, that the little occupier was still proceeding with its work. The feathers inside were increased, as I could perceive, by the alteration in colour. In a few days, two eggs were laid, and I thought my little *protégé* safe from harm, when a flock of ducks, that had strayed from the poultry-yard, with their usual curiosity, went straight to the nest, which was very conspicuous, as the grass had not grown high enough to conceal it, and with their bills spread it quite open, displayed the eggs, and made the nest a complete ruin. I now despaired; but immediately on driving the authors of the mischief away, I tried to restore the nest to something like its proper form, and placed the eggs inside. That same day I was astonished to find an addition of another egg; and in about a week four more. The bird sate, and ultimately brought out seven young ones; but I cannot help supposing it a singular instance of attachment and confidence, after being twice so rudely disturbed."—YARRELL's *British Birds*.

TURKISH HONESTY.

AN open gallery, extending along the whole of the northern side of the edifice [Solimanie, at Constantinople,] is filled with chests of various sizes and descriptions, piled one on the other, and carefully marked; these chests contain treasure, principally in gold, silver, and jewels, to a vast amount, and are all the property of individuals, who, in the event of their leaving the country, family misunderstandings, or from other causes, require a place of safety in which to deposit their wealth. Each package being accurately described, and scrupulously secured, is received and registered at Solimanie, by the proper authorities, and there it remains intact and inviolate, despite national convulsions and ministerial changes. No event, however unexpected, or however extraordinary, is suffered to affect the sacredness of the trust; and no consideration of country or of religion, militates against the admission of such deposits as may be tendered by persons anxious to secure their property against casualties. On one side may be seen the fortune of an orphan confided to the keeping of the directors of the institution during his minority; on the other, the capital of a merchant who is pursuing his traffic over seas. All classes and creeds alike avail themselves of the security of the depository; and although an individual may fail to reclaim his property for twenty, fifty, or even an unlimited number of years, no seal is ever broken, no lock is ever forced. And despite that this great national bank, for as such it may truly be considered, offers not only an easy but an efficient and abundant means of supply, no instance has been known in which government has made an effort to avail itself of the treasures of Solimanie.—*City of the Sultan*.

BENEVOLENCE is not in word and in tongue, but in deed and in truth. It is a business with men as they are, and with human life as drawn by the rough hand of experience. It is a duty which you must perform at the call of principle; though there be no voice of eloquence to give splendour to your exertions, and no music of poetry to lead your willing footsteps through the bowers of enchantment. It is not the impulse of high and ecstatic emotion. It is an exertion of principle. You must go to the poor man's cottage, though no verdure flourish around it, and no rivulet be nigh to delight you by the gentleness of its murmurs. If you look for the romantic simplicity of fiction, you will be disappointed; but it is your duty to persevere, in spite of every discouragement. Benevolence is not merely a feeling, but a principle, not a dream of rapture for the fancy to indulge in, but a business for the hand to execute.—CHALMERS.

SEASONAL WILD FLOWERS.

JUNE.

At this sweet time, the glory of the Spring,
Young verdurous June's delightful opening,
When leaves are loveliest, and young fruits and flowers
Fear not the frosts of May's uncertain hours;
Rich, rife, luxuriant, yet with tenderest hues,
Waves the full foliage, and with morning dews
And showers that gush down from the radiant skies
To bring below the air of Paradise,
Awakening freshest fragrance as they pass,
There is a peerless greenness in the grass,
Yet somewhat darkened with the loftier swell,
And purple tinge of spike and panicle;
While vivid is the gleam of distant corn,
And long and merry are the songs of morn.—HOWITT.

If the sweet May blossoms were the most abundant and the most beautiful productions of the last month, so may the fragrant dog-rose be regarded as the most characteristic flower of June. While our gardens are blushing in the pride of their summer attire, of which the rose, in all its splendid varieties, forms the most conspicuous feature, the hedges are more simply, but not less gracefully adorned with the Wild or Dog-Rose (*Rosa canina*). This sweet flower, with its delicate pink and white petals, is more prized by the botanist, owing to the pure simplicity of its form, than all the double roses of the garden. The dog-rose is very common in our hedges and thickets, and when the roses have disappeared, the bush is scarcely less attractive to village children; for the blossoms are succeeded by the large scarlet berries, called *heps* or *hips*, just as the May blossom is succeeded by the lesser crimson berries called *haws*. These berries, which remain long on the branches, and furnish a supply of food to numerous birds as winter comes on, are also eaten by children without any injurious effect. Many a hungry truant no doubt has been content to do as Cowper did in his school-days,-who says:—

For I have loved the rural walk through lanes
Of grassy swarth, close cropped by nibbling sheep,
And skirted thick with intertexture firm
Of thorny boughs; have loved the rural walk
O'er hills, through valleys, and by river's brink,
E'er since a truant boy, I passed my bounds,
T'enjoy a ramble on the banks of Thames;
And still remember, nor without regret,
Of hours, that sorrow has since much endeared,
How oft, my slice of pocket store consumed,
Still hungering, penniless, and far from home,
I fed on *scarlet hips* and *stony haws*,
Or blushing crabs, or berries, that emboss
The bramble, black as jet, or sloes austere.
Hard fare! but such as boyish appetite
Disdains not, nor the palate, undepraved
By culinary arts, unsavoury deems.

The dog-rose is the most beautiful of the wild flowers contained in the Rose Tribe, but there are kindred flowers which, though less beautiful in appearance, are followed by more palatable fruit. Such is the common Bramble (*Rubus fruticosus*), flowering rather later than the rose, and affording a most abundant supply of berries, well known as *black-berries*. Such also is the Blue Bramble or Dew-berry bush (*Rubus cæsius*), with small white or pale rose-coloured flowers, and large-grained fruit covered with a fine bloom, like that on the plum or grape. And such is likewise the Wood Strawberry, belonging to another family, but included in the Rose Tribe.

There are other members of the same tribe now in blossom, and these we will proceed to notice. The pretty little herbs called Cinquefoil (*Potentilla*) have received an accession to their numbers, most of the species being now in full beauty. The most common are the creeping and the silvery or hoary cinquefoil, with the silver-weed or wild tansy. They bear bright yellow flowers, precisely of the same shape and character as those of the strawberry, and differing only in colour. There is a plant whose blossom is very much like that of the cinquefoil, called Avens, or herb-bennet. It belongs to the Geum family in this tribe. But the leaves are different, and the fruit is a sort of bur, with stiff bristles. There are two other divisions of plants which by some botanists are included in the Rose Tribe, and by others reckoned distinct from it. These are the Apple and the Almond Tribes, including our most delicious fruits. It is of little consequence whether we consider them as one tribe or three; they are so closely allied to each other in many particulars that an acquaintance with one, affords a knowledge of the chief characteristics of all.

We now leave the Rose Tribe in order to notice the plants of another and a still more conspicuous tribe, now blossoming in our fields to the annoyance of the farmer. This is the Poppy Tribe, a few species of which grow abundantly among corn, and are known as red-weed, while another species furnishes the destructive drug, opium, so injurious to a large portion of the human race. Besides these there is the horned poppy on our sea-coasts, so named from its bearing long stiff horns instead of round poppy-heads for seed-vessels, and some others. A beautiful plant belonging to this natural order, brought from Escholt's Bay, and called Escholtzia, is now common in gardens. We notice it here merely to introduce a remark of Dr. Lindley's concerning it which explains a common occurrence in other plants.

The flower of this species before it expands is inclosed in a taper-pointed green sheath, shaped like a hutkin, which is pushed off by degrees as the petals unfold, and at last drops to the ground. This is the calyx, which, like that of the poppy, is formed of two sepals; these sepals grow so firmly together by their edges, where they touch each other, that when the time for them to fall off arrives, they are unable to separate; but as it is absolutely indispensable to the plant that the calyx should in some way or other be got rid of, in order to enable the flower to expand, nature has provided the calyx with the means of separating from the stalk by its base; and thus it is pushed off in the manner I have mentioned.

To the Poppy Tribe also belongs the greater Celandine (*Chelidonium majus*), which grows in shady lanes and waste ground, and may be known by its pale green cut leaves, small yellow flowers, and by the orange-coloured juice which issues from it as we pluck it. In many particulars, plants of the Poppy Tribe closely resemble those of the Crow-foot Tribe, mentioned in former articles; but there is this important difference;—a milky fluid abounds in poppies, and flows out if we break a leaf or stem; while the fluids in plants of the Crow-foot Tribe are watery and transparent. Numerous plants of the latter tribe are now in blossom. The meadows look rich with the different species, among which the showy Marsh Marigold (*Caltha palustris*) still shines conspicuous. A very beautiful family included in the Crow-foot Tribe has for several weeks past enlivened the copses, the lanes, or open pastures where the different species are found. This is the Anemone, or Wind-flower family, so well known in the cultivated state, as affording hardy and handsome plants for our gardens. But those persons who have seen the delicate blossoms of the Wood-anemone (*Anemone nemorosa*) opening in rich profusion before them, as they explored some tangled thicket, or green lane over-arched with boughs and sheltered from the summer heat, will scarcely admit that any of the cultivated species are comparable with the wild flower. In these moist and shady situations the wood-anemone attains a luxuriant growth, and is much more beautiful than when found, as is sometimes the case, on open heaths. This plant is about a foot in height, with leaves much divided, and single fair white blossoms of six petals, the outer sides of which have a purplish tint. There is a species with dull violet petals, silky on the outside which grows in open pastures. It is smaller of growth

and less remarkable for beauty than the wood-anemone; but it agreeably enlivens the scanty vegetation among which it is found. This species is called the Pasque flower (*Anemone pulsatilla*).

Nearly allied to the anemonies is the Adonis or Pheasant's Eye, one of the most beautiful of wild flowers. It is an annual plant flowering from May to October. Very few of the lesser annuals which are so carefully sown in our gardens year by year have half the beauty of this little gem. The leaves are of a bright but tender green, so minutely divided that they look like the beautiful spines of the larch, rather than like ordinary leaves, and from their rich profusion shines out the ruby blossom, small, but of a deep pure crimson that eclipses many a garden flower. In some parts of England this plant is extremely rare. The writer was for a long time unable to collect more than two or three specimens, and these were found growing among vetches or corn. It was therefore a subject of surprise and pleasure, a few days ago, to hear in the neighbourhood of London the cry of "*Flos Adonis*," and to see a well-filled basket of these beautiful little flowers exhibited for sale. We trust this is a proof that the plant is coming into cultivation as a garden flower, and may soon be as general a favourite as Verbena, or any other brilliant blossom of the parterre. It has received its name of pheasant's eye, from a remarkable likeness to the eye of a pheasant. The centre of the flower is nearly black like the pupil of the eye, and the rich colour of the petals well represents the beautiful hue that surrounds the eye of the bird.

While there are so many June flowers to be admired, there are also some to be shunned. Such is the flower,—

> Laced with purple veins
> Fair to the sight, but by the smell
> Unprized, the *Henbane's* straw-tinged bell,
> With danger pregnant.

The Black Nightshade (*Solanum nigrum*) also springs up wherever a spot of ground is suffered to become waste. The leaves are egg-shaped and slightly toothed at the edge, seated alternately upon the stem. The flowers are white, with five equal divisions which turn back and expose the anthers. The whole plant is fetid and narcotic. Black berries succeed the flowers. The Woody Nightshade or Bitter-Sweet (*Solanum dulcamara*) has a shrubby branched stem, purple flowers, and scarlet berries. This plant, as well as the last, is poisonous. The blossoms of these plants much resemble those of the potato plant, and in fact we find that the wholesome root we so much value belongs to the Nightshade Tribe. The berries of the potato are poisonous, while the tubers, when cooked, are very wholesome.

The Deadly Nightshade (*Atropa belladonna*) belongs to another genus, and is far more dangerous than either of the species just named. The blossom is a dull purple bell, succeeded by shining black berries, which have a sweetish taste, but produce the most fatal effects. The plant sometimes grows to the height of three feet; happily for us it is not common; but where found it is generally in hedges or waste ground.

> But more full
> Of danger, dark of hue, and dull
> Of aspect, near with purple flowers
> Perchance the *Deadly Nightshade* lowers.
> Look if you will: but ah, beware,
> Nor lured by specious beauty dare
> To taste the poisonous berry fell!
> Vain were each magic charm and spell
> Of old by white-robed Druid tried,
> With vervain bough that blooms beside;
> Vain were each salutary root,
> Each pungent juice, emetic fruit,
> To break the lulling stupor deep
> And rouse you from that mortal sleep.

Another dangerous plant not truly native, but now growing in a wild state in several parts of England, is the Monk's Hood or Wolf's Bane (*Aconitum napellus*). The dark blue helmet flowers grow on tall stems, and are in blossom from May to July. Unfortunately the plant appears to be a favourite with cottagers, and is often found growing abundantly in their gardens. Yet it is highly dangerous to their children, for not only would the eating of any portion of the plant probably be fatal to them; but by gathering the stems when the fingers have been cut or scratched, the juice may produce the most injurious effects. Cases of this kind have been followed by excessive pain, extending over the whole limb, heartburn, dread of suffocation, fainting, and at last mortification.

There is yet another plant of a highly poisonous nature which we must notice as blowing in June. This is the Foxglove (*Digitalis purpurea*), whose handsome pendulous blossoms thickly invest a stem that rises from two to four feet in height. The flowers are bell-shaped, of a purplish red, and displaying beautiful leopard spots in the interior. The lowermost buds open first, and fresh flowers continue to unfold in regular succession up the stem, so that although the blossoms drop off one by one, the beauty of the plant is still continued, and it is found in bloom from June to September. The poet Cowley fancifully says,—

> The foxglove on fair Flora's hand is worn,
> Lest while she gathers flowers, she meet a thorn.

Whether we traverse copse, or lane, or corn-field, or meadow, wild flowers are to be seen in great abundance everywhere. Among the green corn we find many a bright blossom, such as the Poppy, already named, the blue Corn-flower, the Corn-cockle, the Scabious, the Pimpernel, the Corn-marigold, the Field-mustard, or Charlock, &c.

> But where the living waters glide
> Bathing the summer flowers beside,
> Behold the lucid Pond-weed show
> Its dark green spike above; below
> The swelling stalk and wavy leaves
> The river's circling breast receives.
> There may the purple Avens bend
> The graceful head, though oft it spend
> Its sweetness on the Alpine height:
> With yellow Loosestrife's clusters bright;
> Tall Willow-herb with roseate blush;
> With purple tinge the flowering Rush;
> Pale Meadow-sweet with feathery spray,
> And fragrant as the blooming May:
> Blue Brooklime; and of rival dye,
> Marked with a central yellow eye,
> The Mouse-ear blue: though which may claim
> Of right the legendary name
> That points to absent friends the thought,
> And warns you to "forget them not,"
> Fair florists differ.

The Yellow Iris, or Water-Flag, also blossoms at this time. This plant as well as the purple species is exceedingly common. It grows in marshy places, and by the sides of streams and lakes. The iris was used by the ancients as the symbol of eloquence; and was sometimes sculptured by the Egyptians on the brow of the Sphinx. This flower has long been the national device of France, and the name of *fleur-de-lis* by which it is generally known, is nothing more than a corruption of *Fleur de Louis*. The author of *Flora Historica* thus speaks of the fact.

About the middle of the twelfth century, Louis VII., of France, having been excommunicated by the Pope, and his kingdom laid under an interdict, was persuaded to take up the cross, and join in the romantic expedition of the Crusaders, on which occasion he distinguished himself, as was the custom of those times, by a particular blazon, and for which he chose the Iris flower, that was from hence called *Fleur de Louis*, Louis's flower, and which was first contracted into *fleur de Luce*, and afterwards into *fleur de lis*, lily flower, although it has no affinity to the lily.

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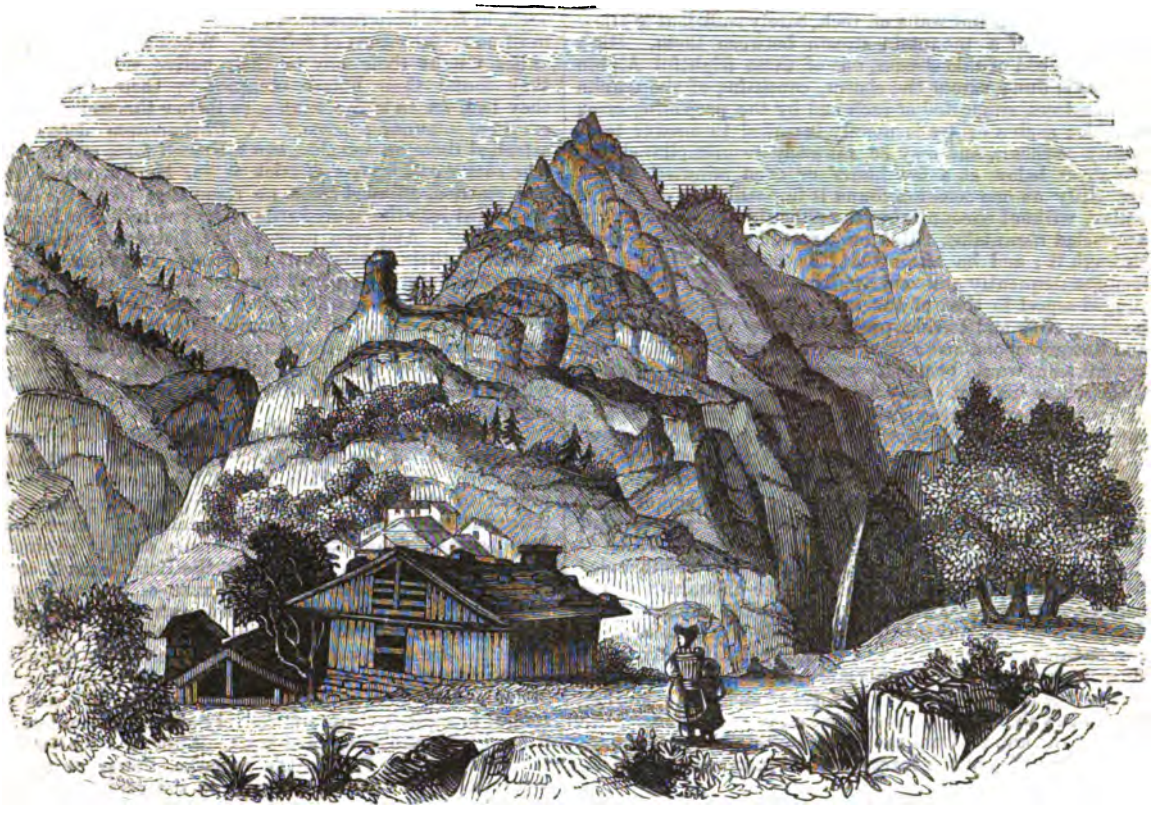
SOME ACCOUNT OF THE WALDENSES.



THE BALSILLE, OR BACEGLIA, A WALDENSIAN MOUNTAIN-STRONGHOLD.

II.

DESCRIPTION OF THE WALDENSIAN VALLEYS, AND THEIR INHABITANTS.

SECTION 1.

GENERAL POSITION AND APPEARANCE OF THE VALLEYS.

In a former Supplement we presented a sketch of the eventful history of the little band of the Waldenses, from the earliest notice which has been handed down respecting them from ancient times, to the year 1840. Let us now take a rapid glance at their valleys, their towns and villages, their churches and church-service, their homes and social arrangements, their personal character and occupations. Our chief authorities for the following details will be the Rev. Dr. Gilly and Dr. Beattie, who have personally visited and described almost every nook of the Waldensian valleys.

These valleys, as we stated in the last article, are situated on the confines of France and Italy, being in the eastern slope of that branch of the Alps which is called the *Cottian*. They form part of the Italian province of Piedmont (a name implying "mountain-foot," and very expressive of the situation of the north-west part of Italy), now owned by the King of Sardinia, whose province of Savoy bounds the valleys in the north. From the town of Rora, the southernmost Waldensian village, to the Col Albergian, the most northern point, the distance measured in a straight line is not much above twenty miles; and the extreme width from east to west is less than twenty. It may seem remarkable that a district so very small should for centuries have been the scene of such exciting events; but it is the moral power of the inhabitants, and not the importance of the country, which has attracted the attention of Protestant Europe. From the town of Pignerol the whole district may be seen as if spread out before the spectator; there are four different valleys diverging from thence; viz., that of Pragela or Clusone, towards the north, with that of Perouse or St. Martin at its further extremity; on the west the valley of Luzern, of which that of Augrogne is a branch; and on the south that of Rora, the least considerable, but the most elevated of the four. Thus there are the valleys of the Pragela, St. Martin, Luzern, Augrogne, and Rora, which form collectively the "Waldensian Valleys," and in which are situated the towns and villages inhabited by the Waldenses. Minor ridges of mountains separate the valleys one from another, a river flowing along the bed or middle of each valley; while all these streams alike, as well as the ridges which separate them, spring from the lofty Alps which bound the district on the north and west.

The valley of the Luzern, which is described by Dr. Beattie as the most picturesque of the group, consists of a fertile plain, bordered towards the south by verdant meadows dipping gradually into the waters of the river Felice, and in every other direction presenting a rich melange of fruit-trees, vineyards, and corn-fields. The vineyards are particularly luxuriant, and festooned from tree to tree at such a height from the ground as to leave spacious avenues, under shelter of which the oppressive heat of summer is unfelt, the labours of husbandry are carried on, and reapers gather in the rich wheat-harvest. In the season when the vine and mulberry are flourishing, and the peasants are engaged in their field pursuits, the scene is

beautiful in the extreme. The public road, the foot-paths, and fences are generally lined with fruit-trees of various kinds, but chiefly with mulberries, which are preferred by the inhabitants for a reason which we shall state hereafter. As we advance towards La Torre, the capital of the Protestant valleys, the scenery becomes bolder. Richly-wooded hills rise in undulating swells to the right and left; in front the valley, contracting into a defile, shows at intervals the rapid course of the river Felice, by which it is alternately wasted and fertilized.

The valley of St. Martin is more rugged in features, and is more difficult of access than the other valleys. It can only be entered by the passes over the lofty mountains which encircle it, or by Le Pont de la Torre, a defile between two natural walls of rock, barely sufficient to allow the passage of a mountain stream between them. High above the bed of this stream, one of those frightful Alpine bridges is flung across the chasm, consisting of the trunks of pine-trees, supported at each end by the projecting crags of rock; such a bridge is merely intended to answer temporary purposes, and may be cut away or precipitated into the abyss below at a few hours' or even minutes' notice. Dr. Gilly on one occasion found it impossible to enter this valley, without encountering the difficulties and dangers of snow-clad mountains. But on a second occasion he passed through it; and he states that the scenery of the valley changes frequently and rapidly, from the most harsh and rugged aspect to that of the most attractive beauty. Stupendous cliffs and terrific precipices give place to verdant and flowery spots, and a turn of the mountain path, by the torrent side, would bring the traveller out of a deep cleft of rock, where his feet were bruised by the stones, to a bank of lavender or a green plateau of herby grass, soft as a carpet; or to a snug nook, where the corn-land is cultivated. The stream was of the same changing character; its deafening roar almost stunned the traveller in some places, and soon afterwards he would come to a deep still pool of azure blue, again to be succeeded by an impetuous torrent, according to the nature of the chasm through which it flowed. The gentleman just alluded to was accompanied by Mrs. Gilly, who shared with him the difficulties of the passage. On one occasion the path made such a rapid descent, that the pony on which she rode was held back by two or three men, to prevent his tumbling headlong down the steep; and on several different occasions the pony would press so near the edge of the precipices as to render the journey not a little alarming. The guide said it was impossible to prevent the animal from indulging in this singular whim, for that he enjoyed the current of air that came from the gulf below.

The other valleys present features more or less like those of Luzern and St. Martin; and in all of them the inhabitants of this region have shown great industry, and adopted many expedients in appropriating to their use tracts of land stolen from the rocks and the torrents. Where the sides of the mountain would be likely to fall in, they form terrace upon terrace, in many places not exceeding ten feet in breadth, and wall them up with huge piles of stone. Upon these terraces they sow their grain, or plant vines. In the same manner they rob the streams of part of their bed; and when they have brought a small plot of ground to bear, they surround it with an inclosure of stones, and protect it from the violence of the waters. Amidst the ruins of former labours, among black masses of rock, on projecting ridges of the mountain, on the brink of precipices, and on the margin of the torrent, do these indefatigable mountaineers hazard their hopes; and in every possible place, and on the smallest spots where a blade of corn can be made to grow, there they raise a little wheat. It is this extraordinary and indefatigable industry which has partly saved them from being dispossessed of the sterile land, which they are yet suffered to occupy; for if they had been driven out of the country, none would have been found to cultivate such an unprofitable soil, and the great landlords would have gone without their rents, and the government without its taxes. It not unfrequently happens that the bad weather sets in before they have carried home the little corn that can be made to grow, or that the frost and snow cover the ground before they can put in the seed for another crop. In these cases, the men are obliged to leave what little provisions they have for the women and children, and to abandon their homes in search of work and subsistence. They in such case return about Easter, with the scanty pittance they have earned, to satisfy the demand of the tax-gatherer, and to save their cattle and furniture from being seized. We may remark here, that the tenure upon which land is hired requires that the occupier should pay to the proprietor half the produce of corn and wine "in kind," and half the value of the hay. The indifferent corn-lands yield about five-fold, and the best twelve.

Section 2.

Mountain-Fastnesses and Retreats.

In a country situated like the Waldensian valleys, intersected and nearly surrounded by mountains, it may reasonably be expected that there are many elevated posts whereto the inhabitants can retreat in time of danger. Such strongholds are to be found in every mountainous country; and such, in fact, have furnished to the Waldenses one of their most powerful means of defence. When the eight hundred exiles fought their way to their native valleys in 1689, they found their homes occupied by their enemies, and they had, for an entire winter, to shelter themselves in one of these mountain posts. A Piedmontese detachment attacked them on one side, and a French force on the other. The rocky and barren district of St. Martin, which they had reached, afforded them no resources; while the defiles which led into the more fertile valleys were in the hands of the enemy. And even most of the fastnesses, which had protected their forefathers in former persecutions, were untenable for any length of time for want of provisions; for scarcely had they taken up a position, before they were obliged to abandon it in search of supplies. There was one, however, which they succeeded in furnishing with a scanty supply of provisions; and in this they made a stand which defeated every hostile attempt on the part of the enemy.

The fastness here alluded to, represented in our frontispiece, and called the *Balsille*, or Baceglia, is as extraordinary as the scenes of which it was the theatre. The approach to this natural fortress is rugged and picturesque. After passing through a wild Alpine tract, a gorge and a deep wooded defile, the valley opens on the mountain hamlet of Macel; and beyond this the Balsille itself comes into view. It consists of a conical mass of rocks, rising at the angle where two valleys unite, extremely difficult of access from all but one point, just above the small village of Balsille. The approach from this village is very steep, and when protected by strong barricades must have presented difficulties of the most formidable character. It consists of several precipices, rising successively above each other, and fringed with straggling pine-trees. After a casual survey of this mountain, Dr. Beattie remarks, the space appears so confined, and disproportionate to the great number of French and Piedmontese troops brought together for its reduction, that some degree of scepticism is apt to arise in the spectator's mind as to the actual amount of that force. But the records on this subject are supported by authorities which it would be rash to impugn. That so small a body of men ill-provided with all that could be deemed indispensable for successful resistance, should so long have held at bay the combined forces of France and Piedmont, has been treated by some as an extravagant fiction. But that they did so—that a band of exiles, entrenched behind barricades in these rugged encampments, not only maintained their post like an impregnable citadel, but often repulsed the besiegers at the point of the sword, are facts too well established, by the existing records of those who shared in the struggles, to be shaken by any discordant testimony. Here, during a whole winter these exiles prolonged their existence in a manner which approaches the very extreme of human suffering and privation. Sheltered in huts excavated in the rocks—mounting guard—labouring at the fortifications, they were supported by the scanty supply of wheat gathered with great difficulty from under deep snow, the unharvested produce of the fields.

But there is one mountain cave which appears to have been still more extraordinary as a place of refuge. Between the years 1561 and 1686 there were no fewer than sixty-eight edicts put in force against the Waldenses, all of which were intended to exterminate them, and which did waste and reduce them. On every one of these occasions, the sufferers had to flee to the mountains, or to defend themselves more or less from hostile attacks; and on one particular instance three or four hundred of them took refuge in a mountain chasm or cavern absolutely inaccessible to their pursuers. Dr. Gilly, while on his second visit to the valleys, wished to see this cavern; and a party was made up for the purpose. It is situated in the rock or mountain of Castel-

uzzo. The travellers gained the summit of a neighbouring rock, from which they could see Casteluzzo rising almost perpendicularly from the valley beneath. No access whatever can be gained to this rock, except by a narrow connecting ledge only broad enough to admit one at a time, and overhanging the depth below. The party, including Mrs. Gilly, passed over this dangerous Alpine path in safety, and then had to clamber up another height, or rapid slope. After a toilsome ascent, on a rocky path, rendered scorching by the heat of the sun, they came suddenly upon a verdant pasture, which the crest of the mountain had concealed from their view; in fact they had scaled the rampart, and were at once transported to an amphitheatre of rich grass, where cows and sheep were grazing. After many ineffectual attempts to discover the cavern or retreat, they were about to desist; when the guide said there was a lower entrance to it, which he thought they could attain. He took them to the edge of a precipice, which overlooked the face of the cliff where the cavern was said to be situated; and he directed them to look down the rock, which was for some hundred feet as perpendicular as a wall, and pointed to a spot he pronounced to be the mouth of the cavern. On an expression of incredulity how so many persons could have gained access to such a retreat by such means, he explained that the descent was achieved by stooping over the projecting crag, and catching hold of the rough points of the cliff, so as to let themselves down till they came to a sort of chimney or tunnel, by which they further descended into the cavern itself. The women and children he supposed to have reached the cavern by the entrance which they had unsuccessfully tried to discover above.

Dr. Gilly gave up any further attempt at that time; but before he left the country he succeeded in visiting this extraordinary place of retreat. Six men formed the party, of whom two had in early youth visited the cavern. They were provided with a strong rope-ladder, a spade, a pick-axe, hatchets, lanterns, and cords; and proceeded to the precipitous rock before mentioned, on the face of which the cavern was said to be situated, far down from the brink. The two guides then pulled off their shoes, stockings, and upper garments; and were joined by two young peasants, who volunteered to accompany them in their perilous descent. The whole four then descended the almost perpendicular cliff, clinging to such projecting ledges as happened to lie in their way. Such was the abruptness of the descent, that those above speedily lost sight of them; but in a short time voices were heard from below, directing those above to lower the rope-ladder, which had been previously fastened to a fragment of rock. The ladder was let down, and fastened to the rock beneath; and Dr. Gilly and his brother descended. They found the descent by the ladder more difficult than dangerous; yet they could not find themselves thus suspended between heaven and earth, by a swinging staircase of rope, which the sharp points of the rock might cut in two, without feeling rather unpleasant sensations. The ladder did not hang straight, but followed the irregular lines of the face of the cliff, which had given hand and foot-hold to the peasants, who led the way. At the depth of about twenty feet the ladder rested against a sort of shelf. From this shelf it hung in an angular direction, and next lay along a rough sloping ridge, like a camel's back; and then depended perpendicularly, rocking with great violence. About fifty feet from the top, there was a second shelf, from which descended in an oblique direction a sort of chimney or tunnel into the cliff, terminating in the cavern.

This cavern Dr. Gilly found to be an irregular, rugged, sloping gallery, in the face of the rock, of which the jutting crags above formed the roof. At one end also there was a projection of cliff, which sheltered it on that side from the weather. The gallery is wide enough to be secure. In some parts the edge overhangs the depth below perpendicularly; at others it shelves gently downwards: but in all directions it quite inaccessible except from above and down the tunnel, which will only admit one person at a time. Some shrubs and rock plants grow in the gallery, which in some degree shelter it from the south, to which in other respects it is entirely open. The term cavern does not exactly apply to it; it does not penetrate deep enough into the rock, and it is perfectly light in every part. There were many difficulties in reconciling the appearance and situation of this cavern with the accounts which had been given of the asylum afforded to three or four hundred persons; but the tradition prevailed strongly amongst the peasantry, and Dr. Gilly found too many corroborative circumstances to allow him to disbelieve the statement of this being the spot in question. It may be remarked here, as Dr. Gilly observes, that the credibility of the accounts handed down, respecting the achievements of the Waldenses in the mountains, will be more readily conceded when we consider the difficulties which their enemies had to overcome in assailing them. Many of the assailants were unused to mountain combats, and all of them impeded rather than assisted by the rules of regular warfare. They were embarrassed by the impossibility of keeping in their ranks, of supporting or being supported by their comrades. An ambuscade was ready to receive them in every thicket, by peasants who understood every kind of furtive annoyance. If they crossed a ravine, they were assailed from above by all sorts of missiles. If they arrived at a defile or narrow pass, the hardy few who defended it, prompt at shifting their ground, had nothing to do but to dispute their advance, as long as their strength was equal to the struggle, and then to retreat and rally at the next spot, which they might consider more defensible. When the troops attempted to push boldly up a slippery steep, they were attacked with stones set in motion by the slightest touch, and rolling everything before them. After they had scaled one height, they often found to their dismay that a succession of such impediments had to be surmounted: no level gained, no position occupied, to put an end to their toils. The peasantry, if forced to yield one point, instantly made for another, and the weary pursuer discovered that his strength and his spirits were exhausted, without anything more to boast of as the price of his toils, than a few hovels, which had already been abandoned by their inhabitants, and ransacked of their miserable contents. In fact, the mountaineer, in his wild mode of warfare, relinquishes his post the moment he finds it untenable, and then leads his foe a wearisome chase from ridge to ridge, till whole battalions are disorganized, and reduced to the necessity of retreating, or of continuing the contest with the certainty of defeat.

Section 3.

Cottages—Domestic Arrangements.

Let us now leave the mountains, and glance at the towns and villages of the Waldensian valleys. The principal town (or perhaps we ought to say village) is called by the Italians La Torre, and by the French La Tour, herein resembling every other place in the district, which has two names, according as it is mentioned in one or other of the two languages; thus, we have Balsille and Baceglia, St. Jean and San Giovanni, St. Martin and St. Martino, &c. The first appearance of La Torre gives a more favourable idea than a closer inspection will permit the traveller to form. The two bridges that are built over a torrent at its entrance, a water-mill, a church seen on the right, and the ruins of an old castle appearing among the trees on a neighbouring height, give a picturesque appearance to the place. But the street, of which the village mainly consists, is narrow and disagreeable, and the houses poorly constructed. The broadest part is called the "Place" or Square de la Torre; the principal building in which is a long heavy-looking edifice, still called the "Palace," once the habitation of the Counts de la Torre, but now occupied in tenements. The church is rather a large building, and stands upon a very picturesque eminence, surrounded by trees and vineyards, and at a distance of about a mile from the village; the rising ground on which it is built bursts abruptly towards the north and west, into rocky eminences, and these into lofty crags and towering mountains, some of which protrude so far from the base, that they look as if they would inevitably fall and overwhelm everything below them.

The village of Angragna enabled Dr. Gilly, in his first excursion in 1823, to witness the domestic arrangements of a humble Waldensian home, where simplicity and comparative poverty went hand in hand. The village or hamlet is situated on a mountain side, around which cows and goats, mules and asses, were allowed to roam. Dr. Gilly and his party were anxious to have a closer view of one of the cottages forming the hamlet. One of these was built very high up the side of the mountain; constructed of coarse stone, uncemented for the most part, but having a little clay or mud to keep together the loose materials, and exclude the wind on the side most exposed to the weather. There were neither chimney nor glazed windows; and the upper chambers were entered by a ladder and gallery. The eaves or roof projected all round so as to form a sort of shelter outside.

As the visitors approached this cottage (which seemed to be one of the best in the hamlet) they heard the voices of

children; and upon opening the door of the lower part a strange medley displayed itself. Immediately on the right from the entrance, was an infant in a cradle, and near it a circle of half a dozen children, neatly dressed, and of cleanly appearance, who were repeating their catechism to a young girl apparently about twelve years of age. On the left were seen a cow, a calf, two goats, and four sheep, and the motley group of living creatures helped to keep each other warm. It was the common sleeping chamber of them all; for leaves and straw generally compose the bed of these simple peasants. The older girl held in her hand Ostervald's Catechism, in French, from which she was instructing her young companions; for though a *patois* of Italian is still the common dialect of the province, all the children of the Waldenses are taught French, because their books of instruction are in that language.

It may appear a strange thing, to those accustomed to European habits, that children, cows, calves, goats, and sheep, should be thus huddled together in one room, and yet that the children should exhibit a degree of intelligence, which we fear English peasants cannot generally equal. But this appears to have been a characteristic of the Waldenses for many ages; for De Thou, who wrote more than two centuries and a half ago, thus speaks of this singular people:—"Their houses are constructed of flint-stone, with a flat roof covered with mud, which being spoiled or loosened by rain, they smooth again with a roller. *In these they live with their cattle*, separated from them, however, by a fence; they have besides two caves set apart for particular purposes, in one of which they conceal their cattle, in the other themselves, when hunted by their enemies. Poor as they are, they are content, and live separate from the rest of mankind. One thing is astonishing, that persons externally so wild and rude should have so much moral cultivation. They can all read and write. They understand French, so far as is needful for the understanding of the Bible, and the singing of Psalms. You can scarcely find a boy among them, who cannot give you an intelligible account of the faith which they profess." It is most remarkable that the practice and position of these people should at the present day so closely correspond with this account, notwithstanding the vicissitudes which the intervening ages have brought about.

But to return. After the visitors had listened a few minutes to the instruction which the young peasant girl was giving to her little brothers and sisters, they mounted to the upper part of the cottage, in which they found the father and mother. The apartment was about twenty feet square, and offered a sight only a little less curious than that below. Here was a variety of articles of household use, not lying carelessly about, but sorted and disposed each in its proper place; there were cleanly and well-scoured vessels for milk, cheese-presses and churns, and a few wooden platters and bowls. There were also several implements of husbandry, spinning-wheels, and a large frame for weaving; for almost everything that is worn by these cottagers is made at home. On a crate, suspended from the ceiling, were fourteen large black loaves of bread. Bread, it appears, is an unusual luxury among them, but the owner of this cottage was of a condition something above the generality. He had a few acres of his own, and his industry and good management had enabled him to provide a winter supply of bacon and flour.

The other cottages which the visitors entered were of an inferior kind, and had but few of those little comforts with which we in England desire to see the poorest supplied; and it was quite astonishing to compare the very rude and insufficient accommodations of these people, with their civility and information. In their mode of herding together under a roof which is barely waterproof, they are far behind our own peasantry; but in mental advancement they are, to the disgrace of England be it told, far ahead.

Section 4.

Churches—Pastors—Religious Service.

When we consider that the Waldenses have for nine hundred years suffered persecutions on account of the firmness with which they have maintained their religious opinions, it becomes a subject of great interest to watch them in their religious duties. Dr. Gilly and Dr. Beattie have both spoken with great pleasure of the church service as witnessed in the valleys. The latter, speaking of a Sunday visit to the church of La Torre, says:—"Through the various avenues, intersecting the acclivities, and opening upon this venerable temple, the village population was observed slowly proceeding to the calm celebration of the day of rest. The patriarch with his sons, the matron with her daughters, the master with his household—all with that air of cheerful and unaffected piety which so eminently distinguished the various groups as they passed—met and exchanged salutations, where the present temple, their noblest monument, rises over the graves of the dead—and with its green inclosure might have served as an original for the well-known 'Elegy in a Country Churchyard.' The interior of the church is plain in design and execution, and offers nothing that can divert the attention from the solemn and impressive service to which it is devoted. It is a tabernacle of which the fastidious architect perhaps would be ashamed, but which the humble piety of the Vaudois (Waldenses) has invested with a sanctity which all the vain accessories of art could never bestow. It corresponds with that simplicity of primitive worship which they profess, and needs not the foreign aid of ornament to awaken those feelings which can alone harmonize with the house of prayer. M. Peyran, the able and zealous pastor of La Torre, in the several divisions of the sermon, evinced a thorough acquaintance with his subject, and that persuasive eloquence in its treatment and exposition, which enlist the hearers on the side of truth, and make curiosity subservient to edification. In a brief allusion to the pestilence with which the valleys were then threatened, he found an impressive topic for illustrating the frail tenure of existence, and of bringing home to every bosom the necessity of being 'also ready.' . . . . . The music which filled up the intervals in the day's service, was little indebted to the science of modern composition; but it was a song in which all present seemed to join with one heart, and in the fine choral swell which followed, shewed the vast superiority of the human voice over those instruments which have too generally usurped its place in the sanctuary." Dr. Gilly similarly records the pleasure with which he visited the church of La Torre. He says, that in passing through the town, everything that he saw reminded him of what he had been accustomed to in England on a Sabbath day; so unlike the usual appearance of towns on the Continent. Silence and decency prevailed in the streets, smartness in the dress, and cleanliness in the countenance of the rustics. Even the clean close caps of the female peasantry resembled those of the villagers of Suffolk; and when he reached the churchyard, the comparison was still more striking, for the villagers were assembled before the church door, waiting for the clergyman, who had not yet come.

The general affairs of the Waldensian church are regulated by a synod, which cannot be held but with consent of the government, and consists of thirteen pastors, and one elder from each parish. The *Moderator*, who presides at the synod, and is the primate of the church, is elected by this assembly; but he must be formally approved by the king before he can enter upon his office. It is the synod also which appoints a pastor to a vacant charge; the parish which loses a minister nominates two or three candidates, and the general assembly chooses the most worthy. It will be thus seen that the church partakes of the presbyterian character of that of Scotland, more than the episcopal of England. It seems, however, that the Waldensian church was formerly episcopal, that is, governed by a bishop; but it is not known when, or under what circumstance, the change was made. At the latter end of the sixteenth century the head of the church was called "Moderator," as at present. Each church, by its own consistory, composed of minister, deacon, and elders, manages its own affairs in ordinary matters, and receives the sanction of the synod in those of more importance.

The liturgy and pastoral duties may be understood from the following details of a visit which Dr. Gilly paid to one of the churches. The hour of commencing the public service was nominally nine o'clock; but the minister did not enter the church till some time afterwards; his place being supplied for the time by the village school-master, called the "regent." This regent read two chapters from the Bible, with the reflections of Ostervald annexed to them. The pastor then entered, and opened his book of prayer (the old liturgy of Geneva), and the order of service proceeded as follows, very impressively on the part of the minister, and with corresponding devotion on that of the congregation. 1. A short exhortation to confession. 2. A form of supplication and confession combined. 3. A Psalm sung. 4. Prayer before the Sermon; extempore or precomposed. 5.

The Sermon, preached from memory. 6. A long form of prayer for all orders of men, for persons in authority especially. 7. The Lord's Prayer. 8. The Apostles' Creed. 9. A Psalm sung. 10. A benedictory address, and exhortation to almsgiving. 11. The final thanksgiving. The whole of the service occupied about an hour and a half. The afternoon service, which is short, is performed by the regent, whose regular office it is to read the Scripture lessons of the morning, to lead the psalmody, and to read the prayers in the afternoon: to read also a public service on Thursdays, and to deliver a word of exhortation at funerals.

The liturgies now in use in the Waldensian Church are those which the inhabitants have adopted in consequence of their connexion with Switzerland, into which connexion they have been drawn by having no institution of their own for the theological education of their candidates for orders, and no libraries except the small private collections of individuals, and by their inability to obtain any religious books, conformable with the Protestant faith, except such as are in the French language. It has, however, been pretty clearly proved that at one time they had a liturgy of their own, independent of any neighbouring church; and proposals have been recently made to them to make some changes in the existing liturgy, with a view to the introduction of some of the features of the beautiful liturgy of the Church of England.

The morning service is the only duty which the pastors have to fulfil within the church; but their pastoral charge is, in other respects, exceedingly laborious. The preparation for delivering their sermons from the pulpit by memory, is more or less burthensome according to their several abilities; but the duty of visiting the sick and aged presses hard on all of them, especially those who dwell in the more mountainous parishes. There, the conscientious pastor's work is never ended. His labour increases with his zeal; the earnestness of his exhortations renders the object of his spiritual concern more desirous of seeing him again and again, and he himself is proportionably moved to further exertions. Dr. Gilly, on asking for information on these points from several pastors, received several answers, from which he gives extracts, shewing the purity and singleness of heart with which these christian duties are fulfilled. In one of these answers the pastor says:—"One of my most precious and pleasing occupations is to visit those who are confined to their homes by age or illness; not only when I am summoned, but whenever I think I can put in a word of consolation, I hasten to the discharge of this sacred duty. In general, the salubrity of the air, and the simple life which my people lead, keep the numbers low on the sick list; but these causes, on the other hand, increase the ranks of the aged, and give me enough to do; for, as you well know, many of the habitations are at such a distance from my presbytery, that it is no easy task to make my rounds so often as I ought." Another says: "My Church is composed of hamlets far distant from each other, and many of them high up in the acclivities of the mountain; nevertheless I feel it to be a sacred duty, and dear to my heart, to obey every summons, at whatever hour, or under whatever circumstances they may be made, and to hasten to the side of those who desire the presence and consolation of their friend and pastor. I hope I myself profit upon such occasions. I endeavour not to lose the influence which is invariably gained after such visits."

From Christmas to Whitsunday, the pastors deliver a sermon on Thursdays. They are also engaged in the solemn preparation for the reception of communicants at the Sacrament, which occurs four times in the year, and which occupies about eight weeks of the pastor's time. They likewise visit every hamlet at least once in the course of the year, to assemble all the inhabitants for the purpose of questioning them as to their spiritual condition and wants. In addition to these duties, to the church service and to visiting the sick, they superintend weekly catechising, both in the church and the presbytery. Yet with all this they are so poor, that they have in some instances to eke out their scanty subsistence with daily labour, being prevented from taking the office of schoolmasters by the utter impossibily of devoting sufficient time to it.

On one occasion Dr. Gilly heard a sermon preached on the top of the mountain by one of the pastors, to the herdsmen, shepherds, and their families, who were depasturing their cattle on that spot. The party took up their abode at a little mountain inn on the previous night; and the intelligence of the approaching sermon brought many additional persons from the French, as well as the Italian, side of the mountain. As the morning was threatening, the clouds low, and the wind high, the service was performed in a large granary, instead of in the open air, as was customary in such mountain preachings. At nine o'clock, a man ascended to the roof of the little inn, and blew a long and loud blast with a conch-shell; this he repeated at half past nine, and at ten, and was on each occasion heard at a great distance. After the first blast, people were seen approaching from different quarters; and this picturesque gathering continued for more than an hour. The service then commenced, and was listened to, and joined in, with the most impressive earnestness; the pastor taking the text of his sermon from the appropriate verse "How beautiful upon the mountains are the feet of him that bringeth good tidings; that publisheth peace; that bringeth good tidings of good; that publisheth salvation; that saith unto Zion, Thy God reigneth!"—Isaiah lii., 7.

Section 5.

Schools—Education.

The schools at which the children of the Waldenses receive their education are of different kinds, according to the funds by which they can be supported. The public schools are classified as *Great Schools*, *Small Schools*, and *Grammar Schools*. The great schools may be deemed parish or district schools, and the smaller schools as hamlet or village schools. All these schools are directed by schoolmasters, some of whom speak French tolerably well, and write a pretty good hand; but in general they neither speak French well, nor write well. They all read French, but have a very imperfect knowledge of that language. The greater part of them are in the habit of speaking *patois*, and there are no means of learning French grammatically in the valleys. They can all cipher a little, but have no books of arithmetic, slates, or slate-pencils.

The schoolmasters teach reading, both in the district and the hamlet schools, by means of a small spelling-book called a *Carte*, and by similar means teach their pupils to read Ostervald's Catechism, the New Testament, and the Bible. They set copies on detached sheets of paper in round and small hand, and sums in the four first rules of arithmetic from memory; these the children work out also on sheets of paper. But it often happens that this mode of teaching is too expensive for the parents, so that the children are greatly delayed from want of writing paper. The children are in general arranged in the school in classes; the master sets a lesson to each child, and the whole of the scholars come up to him in succession—a system by which, as is now well known in England, much valuable time is wasted.

The Waldenses must not be blamed for the many defects observable in the system of education, for they are prohibited, by an edict of government, from having any Committee of their own for the regulation of public instruction, and from using any system of mutual instruction. Colonel Beckwith, who spent some time amongst them, and took much pains to ascertain the social condition of the peasantry, says:—"Other systems of education, if they were permitted, would bring on the children much faster; but in the present state of the country, and of the population, it would be difficult to carry them into effect. The greatest defect of the present system is, that the means used to teach French do not effect the object so as to enable the population to read and listen to the Scriptures with the profit that is desirable. There does not appear to be any immediate remedy for this; first, on account of the expense of forming masters, the want of means to pay these masters, and the difficulty of teaching a foreign language to peasants who are occupied in supplying their daily wants in a country where there are no books written in the dialect spoken by its inhabitants. The wants of these schools are New Testaments, slates, and slate-pencils: of the latter there are none in Piedmont, and they might probably be supplied cheapest from England, by way of Genoa."

The Dutch have been great friends to the Waldenses; not only interceding for them when persecution threatened them, but furnishing them with funds to assist in purchasing books, increasing the stipends of the pastors, and maintaining schools. There is a yearly allowance from Holland towards the support of the district schools, varying from fifty to a hundred and fifty francs each, and from twelve to fifty francs for each of the hamlet schools. These stipends

to the masters are increased by some small contribution from each commune. The greatest payment which is made to any of the masters of the district schools, is four hundred francs or sixteen pounds per annum, which includes his salary as catechist and reader in the church. Some of the masters of the hamlet schools live with the inhabitants, of the hamlets in which they teach, one day in one cottage, one day in another; so miserably insufficient are their stipends.

Dr. Gilly visited the schools at a period which showed how difficult it is to keep the children of a labouring population at study at the time when field occupations are active. The small schools, about a hundred in number, were for the most part closed, and the district schools were held very irregularly, owing to the absence of the children, who were principally occupied in the fields and mountain pasturages, tending the flocks and herds, or collecting the produce of the silk-worms. Dr. Gilly, however, entered one of the school-rooms, where he found twenty-two boys and girls present, varying from seven to sixteen years of age. In the months when the attendance is most regular, the numbers in this school (the district school of La Torre) amounted to a hundred or even a hundred and thirty. One boy was busy with a sum in the rule of three. A little girl eight years of age was reading tolerably well in the Catechism; but it appeared that the child did not quite understand the meaning of the French language in which she was reading, while the master was not competent to explain it to her in her native patois,—another instance of the unfortunate position in which the Waldenses are placed in respect to language.

The distinction between district schools and hamlet schools arises out of the exigences of the inhabitants. Each commune or parish has its school, but many of the hamlets forming the commune are situated so far up the mountain sides that the children of the peasantry would get no education at all unless they could obtain it near home. Thus it arises that each hamlet has its own school. Parents would prefer to send their children to the larger schools, but circumstances compel them to the adoption of another alternative. The hamlet schools are usually conducted by some of the better educated peasantry, who think they are well paid if they receive twenty or twenty-five francs for their labour during about four months in the year—the utmost that the children can be spared from field-employments. In the district of La Torre these hamlet schools number from twelve to fifty scholars each. The school-rooms are small and cheerless, for the most part unglazed, having paper instead of glass, with scarcely any desks or seats; and warmed by rude stoves or grates which fill them with smoke.

A school of a higher character, called the *Grammar School*, has been established in the valleys. Some such school as that has been maintained, with more or less of interruption, for many ages, and has been principally supported by contributions from the Protestant States of Europe, especially Holland. Still the funds for its support were exceedingly scanty; and it seemed likely to fall into oblivion, when, about a dozen years ago, the Society for the Propagation of the Gospel arranged to furnish a small yearly allowance for the support of the school. Shortly after the arrangement had been made, Dr. Gilly, in his second residence at the valleys, paid a visit to the school, which he did not expect to find conducted very efficiently, since the master received but thirty-five pounds per annum for instructing the scholars in Latin, Greek, and Sacred Literature; out of which small stipend, too, he had to pay rent for his habitation and school-room. The school was, however, very creditably conducted. It consisted of twenty-two boys, varying from nine to fifteen years of age. They were divided into five classes, in different stages of progress, from the Latin Grammar and Latin Sentences, to the works of Cicero, Virgil, and Horace.

All the schools which we have mentioned, except the Grammar School, are attended by girls as well as boys; but efforts have been made towards the establishment of girls' schools, on the principle that it is better for each sex to be educated separately. Four girls' schools have been established by funds managed by a London Committee, and subscribed from various quarters; while four others are maintained by private individuals. Dr. Gilly visited one of the former class, and found the school-mistress to be the daughter of a neighbouring farmer. The school-room was large, airy, and cheerful; and the scholars were all busily employed, some marking, others knitting, and others reading from the New Testament. The prejudices of the people, who seemed to prefer the old plan of sending their daughters to the district and hamlet schools, had not yet worn off; and Mr. Gilly accounts for that prejudice thus:—"It is supposed here that female teachers are not so competent to instruct as the masters. The very great poverty which is experienced in some of the families, occasions an inability to provide their children with the materials for work in the girls' scool, without which it would be useless to send them. This will in future be obviated in part, by an allowance made by the London Committee, for the express purpose of supplying the schools with these materials. There is some reluctance also arising out of the superior neatness and cleanliness exacted of those who now attend. The appearance of the scholars of the girls' school, being somewhat above that of the generality of children, makes the ill-provided ashamed of joining their ranks. These objections will wear off in the course of time: the good example and habits of attention to personal and household neatness will spread by degrees, and the great advantage will be appreciated of having their young females instructed in a manner more becoming their sex, and in being directed at an early age to the study of things necessary to make them useful to their families. In a rustic and mountain-population, like that of the Vaudois, these considerations are commonly too much neglected, and the peculiar training which girls ought to receive is left to chance. It was to correct this evil, and to give them opportunities which they had never before enjoyed, that these new institutions were devised."

The regulations by which these girls' schools are governed, are chiefly as follow. The mistresses must be qualified to teach reading, writing, needlework, knitting, and the works necessary to the duties of the sex; for which they receive three hundred francs (12*l.*) a year. The number of pupils conveniently admissible at each school, is supposed to be twenty-five, but it is not strictly limited. All classes of children are eligible for admission, but none is received without the approbation of the pastor. The children of the villages and hamlets in the vicinity of those where the schools are held, are admissible. In Summer, the school hours are from eight to eleven, and from one to four; in the Winter, from nine to twelve, and from one to three. The school routine begins and ends with prayer every day. One child reads a portion of Scripture, while the others are engaged in needlework. The work of one day in the week is devoted to the benefit of the hospital or dispensary, the materials for such work being provided out of the funds whereby the school itself is supported.

Section 6.

Productive Industry.

The preceding details will have prepared us to expect, that among a people circumstanced as the Waldenses are, productive industry is not in a very developed state; that is, that although they may produce the food on which they live, they have little of that or of anything else to barter or sell to other countries.

The most important article of produce, considered in a commercial point of view, is that of silk, by the rearing of the silk-worm; an occupation very extensively carried on in Piedmont, of which these valleys form a part. To those who are not acquainted with the economy of this little insect, it may be well to explain one or two circumstances which will illustrate some of the domestic arrangements of the Waldenses. The eggs of the silk-worm produce their larvæ about the end of April or the beginning of May. By good management it is possible to accelerate the development of the worm, by placing the eggs in a stove-room, the temperature of which is raised gradually in the course of twelve days from 64° to 82°. The egg is about the size of a small pin's head; and when the animal first issues from the shell, it measures about one-fortieth of its full-grown length. It undergoes five changes or moultings, and in a month it has attained its full size, and the rapid increase of one-fifth of an ounce, or ninety-five times its own weight, from the time it came from the egg. The remarkable fact has been ascertained that the silk-worm consumes in thirty days more than an ounce of leaves, or five times its own weight when at the greatest size. This voraciousness not only renders the silk-worm an expensive and difficult animal to rear, unless the supply of food is ample, but exposes it to diseases which often prove fatal. Hence in years when the leaves of the

mulberry-tree (the food of the silk-worm) are scanty or of a bad quality, the peasants lose their stock, or secure it at a heavy cost, and are disappointed in one of their principal hopes. Twelve pounds weight of leaves are required to feed the number of worms necessary to produce one pound weight of silk cocoons (little balls into which the worm forms the silken substance); and the expense of procuring these is sometimes nearly as much as the poor cottager receives for the silk.

Another drawback is, that the temperature which the silk-worms require is such as a Waldensian cottage cannot often afford. In fact, such nice attention and unremitting care are needful to reap the harvest, when the worms are performing their last operation, that the cottagers keep watch night and day to prevent any mishap, and to secure the cocoon at the precise time when it is completely formed. When the worm has attained a working state, he begins forming the cocoon whence all our silk is produced, and completes the process in about eight or ten days. Then comes the critical time. When the animal is supposed to have finished, he will become torpid, and the silk balls are removed from the branches or frames to which they had been attached, and exposed to a degree of heat which will kill the insect; otherwise, he will recover his energies after a short interval, and damage the silk by working a hole out of his prison-house.

On such an occasion as this, when a cottager has succeeded in rearing his worms to the point when the cocoons are fit for gathering and preparing for the market, a sort of harvest-home and scene of joyful industry occurs: his friends and neighbours come to felicitate him upon the occasion, and to assist the family in collecting and preparing the cocoons for the market. A frame-work of fagots or brushwood forms the ground on which the cocoons are fixed by the worms; and from this frame-work they are now removed and brought to the farm-yard, where they are picked and sorted by a lively group seated in a circle, whose occupation it is to separate them from the outer web or film, and throw them so cleansed into one large basket. Generally speaking, the growers sell them in this state, receiving about a franc and a quarter, more or less according to quality, per pound.

The process of "filature," by which the silk is wound off from the cocoons and presented in the form of a continuous thread, is generally effected by persons who purchase from many different growers. This is effected by throwing the coccons into water nearly boiling hot, and keeping them in constant agitation. The ends are then detached from the balls by means of wisps of birch or rice-straw, and are gradually wound off by machinery upon a reel, which, uniting the fibres of four or five balls into one, forms a skein of sufficient strength and thickness. The single threads, as drawn out from the cocoons, are by far too fine and delicate for use; and the skill of the reeler depends upon the nicety with which he joins the fibre of one cocoon to that of another at the proper place, for the fibre diminishes greatly in thickness towards the end.

The establishments in which this last-named operation is carried on are sometimes very considerable, and are called (as well as or after the process itself) *filatures*. Bernoulli, who described the Waldensian valleys some years ago, says:—"Very near Lucerna are two villages, the one called St. Jean, the other La Tour. In the last I saw one of the most considerable filatures in Italy; the quantity of cocoons, as they informed me, amounted to two thousand roubs, or fifty thousand pounds weight per annum, and the filature of these cocoons lasts till the end of September. I remarked that they turned the wheel with the foot, and not with the hand, as I have seen in other filatures, by means of a handle which they turn alternately first with one hand and then with the other. The advantage which they have here in turning with the foot, and not with the hand, consists not only in their moving the reel more rapidly, but in directing the movement which acts upon the cocoon, and of stopping it when necessary."—Unfortunately the Waldenses have been since deprived of this large establishment, which used to employ hands enough to reel fifty thousand pounds weight of silk in the year. The principal filature is now removed from La Tour to Pignerol or Pinerolo, just without the Waldensian district, in another province of Piedmont. We may remark that it was from somewhere in this part of Italy that Sir Thomas Lombe brought over to England the mode of silk-filature, which was before his time entirely unknown in England.

The agricultural labours of the peasantry are confined to the raising of sufficient food for themselves and families, and this is often miserably deficient. They seldom suffer the ground to lie fallow; and the most general rotation is—wheat for two years, and maize the third. The land is well manured from time to time, and the corn is usually sown in August and September, and cut in June. In the vale of San Giovanni, and a few other favoured spots, hay is cut three times in the year. The animals reared are sheep, goats, cattle, and a very few horses. The ploughing, where the plough can be used, is done with the assistance of oxen; but in the higher districts, and in rocky soils, where the plots of corn-land are very confined and bordering upon the precipices, most of the field-labour is done with the spade and hoe.

The general state of the peasantry as to agriculture and trade, cannot be well understood without referring to the restrictions under which they labour, and the disadvantages against which they have to contend. If we take the state of 1823 as a representative of the present state (and we believe that, on the whole, these restrictions are not now less than at the former period) the following will give an idea of the subject. No Protestant can inherit or purchase land beyond the limits of the rivers Clusone and Felice, two only of those which flow through the valleys; and thus the majority of the villagers are deprived of that stimulus which the possession of a little landed property gives to agricultural pursuits. No one of the Waldenses may practice as a physician, a surgeon, apothecary, attorney, or advocate, except among his own community, and within very narrow limits; even in the communes of the three most favoured valleys, there must not be a majority of Protestants, that is, the *officers* of the valleys must number more Catholics than Protestants; although the latter are in some of the districts forty to one of the former. The Protestants are obliged to observe the festivals of the Catholics, and to abstain from work on those days: an excessive hardship, for there is one holiday at least every week, and sometimes two or three; so that the Protestant peasant has only from three to five days per week for labour. A poor Waldense has sometimes to pay a fine for irrigating his little meadow on a Catholic saint-day. Fifteen sous a day in the winter, and thirty in summer, are the utmost that a peasant can earn, even when these forced holidays are fewest; and he can often procure only bread of the coarsest kind, potatoes, and chesnuts, with the fruit of his earnings. Shut out from military, and civil employments, and from the learned professions, the Waldenses are necessarily confined within most vexatious limits, and even there the restrictions bear hardly on them. There are one or two small establishments for the woollen manufacture, for tanning, and for charcoal-burning; and these constitute, with the silk culture, the sum of Waldensian trade.

Section 7.

Miscellaneous Observations.

We will throw together, in the concluding section of our subject, a few miscellaneous particulars which do not properly belong to the preceding sections.

The inhabitants of these valleys, it has been remarked, bear in their features the expression of their history—of the sufferings to which they have so long been victims, as well as of those arduous struggles in which they have been victors. The men are generally tall, robust, and well made, and improve their physical gifts by laborious occupations in the fields, or by hunting. Their frank and manly character, their unaffected hospitality, and exemplary conduct in all the degrees and ties of mutual relationship, their grateful recollection of their benefactors, their loyalty and patriotism, and the moderation they observe in speaking of their former sufferings, are conspicuous features of their moral character. As an instance of the latter, one of the Waldenses told Dr. Gilly that his father would not allow him to open or read, until he was twenty-four years of age, Leger's *History of the Persecutions of the Waldenses*, a work which detailed, from the personal observation of the author, the terrible sufferings which the Waldenses experienced in the latter half of the seventeenth century: the father was fearful lest the recital should engender bitter feelings towards his Catholic neighbours, in the breast of his son.

Those crimes which require the punishment of the civil magistrate are of rare occurrence. A stranger may pass through their country by day or night without the fear of molestation. Many of the inhabitants reach an advanced age, often as much as ninety years; and this notwithstanding the severe toil whereby they gain their daily bread,—

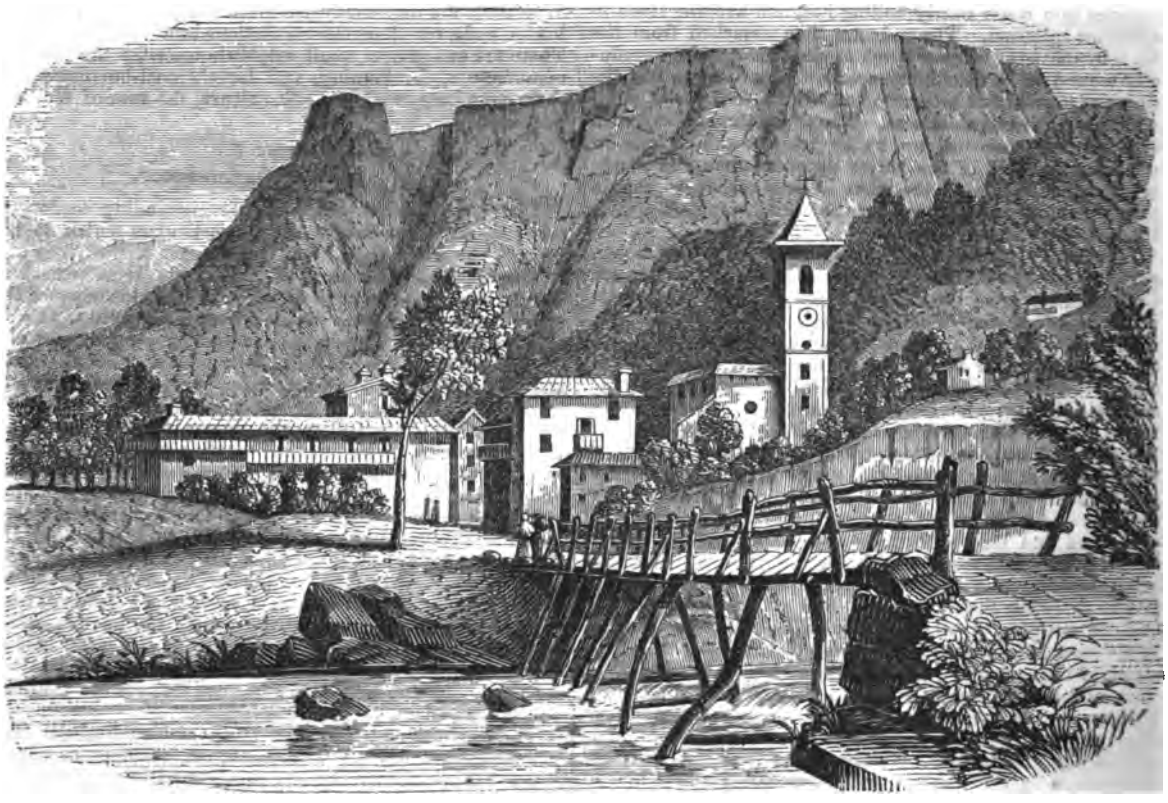
being compelled sometimes to raise walls to prevent the earth from being washed down by the rain—to break up the soil by manual labour in precipices where no cattle can be employed, and (both men and women,) to convey hay and corn to a great distance on their backs.

Among the advantages which the benevolence of strangers has given to Waldenses, and which they could not have procured for themselves, are an hospital and college. The hospital originated with William Prenderleath, Esq., during his residence in the valley, in the summer of 1821; who, in the following year, transmitted the sum of two hundred and seventy francs, being part of the sacramental collection of the English congregation at Rome, in furtherance of this important object. Having obtained their Sovereign's permission to solicit foreign contributions, the Waldenses were warmly supported by the King of Prussia, who authorized a collection to be made in the churches of his dominions, and contributed one hundred ducats from the privy purse. From various sources the sum collected amounted to more than a hundred thousand francs (four thousand pounds); and the King of Sardinia granted permission to purchase a house and land in the commune of La Torre, for the purposes of a hospital. Subscriptions continued to come in, and the commitees who managed the subscriptions in England, Prussia, Holland, and elsewhere, prudently resolved to invest the capital in the public funds of the countries where such capital was raised, and to remit the interest by yearly or half-yearly payments to the hospital committee at La Torre. By this judicious arrangement, an hospital at La Torre, and a dispensary in the valley of St. Martin, enjoy the benefit of an income of 400*l.* a year, in direct money from England, Holland, and Prussia, besides a rental amounting to about another 100*l.* The building is most advantageously situated with respect to the various valleys and villages; it consists of twelve rooms, each about sixteen feet square, and stands within an inclosure of about two acres. The site is somewhat elevated, perfectly detached from other buildings, and has the advantage of a fine supply of running water, besides two large pools or reservoirs.

The hospital has convenient accommodation for fourteen patients, and the dispensary at Pornaretto for eight; and the average expenditure, independent of the salaries of the physician, surgeon, ward-keeper, and matron, (together, about a thousand francs a year,) is at the rate of one franc a day for each patient, including food, medicine, fuel, and wine—a fact which will enable us to draw some conclusions as to price of provisions in that part of Italy. In the course of the year about two hundred persons are admitted at the two houses. The complaints most common to the sufferers arise from old age, inflammation, accidents, rheumatism, and low fevers, brought on by poor living and cold.

The College, to which we slightly alluded above, was founded a few years ago, chiefly through the active exertions of Dr. Gilly; and Dr. Beattie found it to be making slow but steady progress. Since then, however, new edicts have been promulgated by the Sardinian government, apparently threatening this among many other of the Waldensian institutions.

When we consider that it is in defence of their ancient religious faith that the Waldenses have so courageously borne up against all the persecutions which have been levelled against them, we perhaps cannot better conclude our brief sketch than by quoting the following eloquent passage from the benevolent writer (Dr. Gilly) who has done so much to render Englishmen familiar with the simple mountaineers. "The primitive church! The one little lamp and its light, shining in the middle ages! The struggles of the first Reformers in Protestantism, in its uncompromising firmness and integrity!—What a crowd of ideas rush into our minds when we think of these! How we try to imagine the scenes, the characters, the events of antiquity, when Christianity was at its purest and simplest degree, then to trace its course through the dark ages of Romish usurpation, till it emerges into clear day again, at the æra of the Reformation!—Many of the images, which we conjure up when reading of the past, are realized before the eyes of those whose have opportunities of seeing the Waldensian church in her mountain-hold,—so wonderfully are the past and the present combined in her form, wasted though it is. In her we find the line carried up to a period sufficiently remote to connect her with the Apostolical succession. We trace the creed and the local habitation, if not the very name of this Alpine church, from age to age upwards, until we reach a date which satisfies us, that having early embraced the primitive faith, she has retained it amidst the surrounding darkness, as its only faithful depository."



LA TOUR OR LA TORRE, THE CHIEF WALDENSIAN VILLAGE.

JOHN W. PARKER, PUBLISHER, WEST STRAND LONDON.

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FRESCO PAINTING—II.

In a former Article were described the methods of preparing the cartoon and the wall for the reception of the fresco: we come now to detail,—

3. *The process of painting.* The wall being properly prepared, the outline of the figures is to be traced with a sharp point on the plaster, as before described. The artist commences his work when the surface is in such a state that it will barely receive the impression of the finger, and not so wet as to allow the colours to run or to be liable to be stirred up by the brush. If the wall has been previously well wetted it will in general not dry too rapidly; but if in warm weather the surface becomes too hard to imbibe the colour properly, a small quantity of water is from time to time sprinkled over the surface.

The colours being ground fine in water, and the most useful tints abundantly supplied, they are arranged in pots or basins, and several pallettes with raised edges are ready at hand to work from. A few pieces of tile or some absorbent material are provided to prove the tints upon, because all colours ground in water become much lighter when dry than they appear when wet. The brick absorbs the water, and leaves the colour nearly in the state in which it will appear upon the wall.

The first tints that are applied sink in and have a faint appearanee; it is therefore necessary to go over the work several times before the full effect is produced: but after some time the last addition of colour will not unite with that already applied unless the part be again wetted.

GROTESQUE FRESCO. *(From the Vatican.)*

At the close of a day's work, any portion of the prepared plaster which remains over and above the finished part is to be cut away, care being taken to make the divisions at a part where drapery, or some object, or its outline forms a boundary, for if this be not attended to, the work will appear patchy. The next day in preparing a new surface, the edges of the previously painted portion must be carefully wetted so as to ensure a perfect junction of all the parts of the painted surface.

At Munich the artists have a contrivance for arresting the drying of the work should they be unable to finish the day's allotted portion. A piece of fine linen is wetted and spread over the fresh plaster and painting, and pressed to the surface by means of a cushion covered with waxed cloth.

Defects are sometimes remedied by cutting out the objectionable portion, and painting it anew upon a fresh surface of plaster. In the finished fresco, shadows are sometimes deepened, parts are rounded, subdued, or softened by hatching in lines of the colour required, mixed up with vinegar and white of egg. Crayons made of pounded egg-shells are sometimes used to heighten the lights. But all these additional amendments are highly objectionable; they impair the durability of the fresco, and in the open air these retouchings are useless, because the rain washes them away, whereas it has no influence upon frescos painted without retouching.

4. *The colours and implements.* The colours employed in fresco painting are few and simple. They consist chiefly of earths and a few metallic oxides variously prepared. No animal and vegetable substances can be used, because the lime would destroy them. The brushes are of hog's hair, but longer than those used in oil painting. Small pencils of otter hair are also used; no other hair being found to resist the lime. Pure distilled water ought to be employed in all the operations of this art.

Such is the process of fresco painting, the details of

which, after tne above statement, will be rendered more intelligible by the following abridged account of a visit, by Mr. Andrew Wilson, to the royal palace at Genoa, to see the Signor Pasciano paint a ceiling in fresco:—

The artist had prepared his tints upon a table with a large slate for the top: they consisted of terra vert, smalt, vermilion, yellow ochre, Roman ochre, darker ochre, Venetian red, umber, burnt umber, and black. These colours were all pure, mixed with water only, and rather stiff. He mixed each tint as he wanted it, adding to each from a pot of pure lime, or from one containing a very pale flesh tint. A lump of umber served to try his colours on. He used a resting-stick with cotton on the top to prevent injury to the prepared wall, or *intonaco*, as the Italians call it. The moment this surface would bear touching, the artist began to work upon the figure, the outline of which had just been traced. The head was that of the Virgin. The artist began with a pale tint of yellow round the head for the glory; he then laid in the head and neck with a pale flesh colour, and the masses of drapery round the head and shoulders with a middle tint, and with brown and black in the shadows. He next, with terra vert and white, threw in the cool tints of the face; then with a pale tint of umber and white modelled in the features, covered with the same tint the part where the hair was to be seen, and also indicated the folds of the white veil. All this time he used the colours as thin as we do in water colours; he touched the intonaco with great tenderness, and allowed ten minutes to elapse before touching the same spot a second time. He now brought his coloured study, which stood on an easel near him, and began to model the features, and to throw in the shades with greater accuracy. He put colour in the cheeks, and put in the mouth slightly, then shaded the hair and drapery, deepening always with the same colours, which became darker and darker every time they were applied, as would be the case on paper for instance. Having worked for half an hour, he made a halt for ten minutes, during which time he occupied himself in mixing darker tints, and then began finishing, loading the lights and using the colours much stiffer, and putting down his touches with precision and firmness: he softened with a brush with a little water in it. Another rest of ten minutes; but by this time he had nearly finished the head and shoulders of his figure, which being uniformly wet, looked exactly like a picture in oil, and the colours seemed blended with equal facility. Referring again to his oil study, he put in some few light touches in the hair, again heightened generally in the lights, touched too into the darks, threw a little white into the yellow round the head, and this portion of his composition was finished, all in about an hour and a half. This was rapid work, but it will be noticed that the artist rested four times, so as to allow the wet to be sufficiently absorbed into the wall to allow him to repass over his work. He now required an addition to the intonaco; the tracing was again lifted up to the ceiling, and the space to be covered being marked by the painter, the process was repeated, and the body and arms of the figure were finished.

On the occasion of a second visit, Mr. Wilson remarked that the artist had cut away from his tracing or cartoon those parts which he had finished upon the cieling; that the tracing was in fact cut into several portions, but always carefully divided by the outline of figures, clouds, or other objects. These pieces were nailed to the plaster, so as to fold inwards or outwards for the convenience of tracing the outlines. The artist was now about to proceed with a group of figures. Having gone over the outline carefully with a steel point he waited till the intonaco became a little harder, and in the meantime mixed up a few tints; he then commenced with a large brush, and went over the whole of the flesh; he next worked with a tint which served for the general mass of shadow, for the hair, and a slight marking out of the features. He now applied a little colour to the cheeks, mouth, nose and hands, and all this time he touched as lightly as possible. He then paused for ten minutes, examined his oil study, and watched the absorption of the moisture.

The intonaco would now bear the gentle pressure of his fingers, and with the same large brush, but with water only, he began to soften and unite the colours already laid on. He had not as yet used any tint thicker than a wash of water colour, and he continued to darken in the shadows without increasing the force or depths of colour. The artist now increased the number of his tints; he made them of a much thicker consistence, and he now began to paint in the lights with a greater body of colour, softening them into the shades with a dry brush or with one a little wet, as was required. In drying, the water comes to the surface and actually falls off in drops, but this does no harm, although, as Mr. Wilson remarks, it sometimes looks alarming.

The effect of fresco painting is described as being exceedingly beautiful. It does not require for the production of its general effect those particular and concealed lights which the shining surface of an oil-painting renders necessary. Fresco is seen entire in any situation and by any light, even by artificial light, which perhaps shows it best. Mr. Severn was much struck by the increased beauty and power of the Caracci frescos at Rome by artificial light. Even a dim or diminished light does not destroy their effect.

It must have been for this reason that Raphael adopted fresco in the Vatican, after he had made experiments in oil; for the rooms are so ill-lighted that oil pictures could never have been seen at all; and it is surprising to find such fine works in such a place. Three sides of the rooms are illuminated merely by the reflected light from the great wall of the Sistine chapel, yet this beautiful and luminous material of fresco is so brilliant in itself that the pictures are well seen. Nine of them were painted without a ray of real light, and have always been seen in the same way. I think this is a very important consideration, for as we have but a diminished light at any time, it is most necessary to adopt a manner of painting suited to it, which can be seen at all times.

Fresco does not seem to be at all understood in this country; it is generally confounded with scene painting; it is a common mistake to suppose that the cartoons of Raphael are the same as his frescos: it is often confounded with distemper painting, which is done on a dry ground, and does not admit of richness of colour.

This will be clearly understood, (writes Mr. Severn,) by those who have had the good fortune to see Raphael's and Guido's frescos at Rome, which, for colour are exquisitely beautiful, and even powerful in all the fascinations of this part of the art, presenting to us still greater varieties than oil painting can pretend to; excelling in all the delicate effects of atmosphere, from the gorgeous daylight, the air of which you seem to breathe in a fresco picture, down to the silvery flitting charm of twilight. In these particulars it reminds us of English water-colour effects. Then I should mention the magnificence of fresco landscape, and of landscape backgrounds, particularly by Domenichino, in which not only the characters, but the movements of trees are always rendered in a way which I have rarely seen in oil colours. . . Then I must remind you of the grandeur of colour and effect in Michael Angelo's frescos on the cieling of the Sistine chapel. What oil could ever have approached such things? When he said "that oil painting was only fit for women and children," he meant on account of the labour and difficulties of the material compared with fresco. We are assured he performed this gigantic labour in twenty months, without the usual assistance of colour-grinders or plasterers, but alone with his own hand. There are on this ceiling fourteen figures, of at least forty feet in stature, and nearly five hundred figures, the least of which are double the size of life. While we regard this as the most extraordinary example of individual human power we must consider that it was only in the simplicity and ease of the fresco material that Michael Angelo could have accomplished such a stu-

pendous work. The preparation of oil colours, varnishes, &c., would alone have occupied the twenty months.

The small cost and great durability of fresco are not the least of their advantages. It was feared that the smoke of London would soon destroy our frescos, but Professor Hess stated that "if frescos were painted in the open air in London, the rain would be the best picture-cleaner." Indeed, competent authorities agree that pure water and a soft sponge are the best means for cleaning frescos from the effects of smoke. That the change effected by time upon the colours is to increase their effect. The great enemy to fresco is a wall constitutionally damp, in which lime in too new a state has been employed, or new timber or imperfectly burnt bricks. The nitre which sometimes accumulates on walls is also very destructive.

Nor are frescos such permanent fixtures as is generally imagined. Some ingenious Italians have succeeded perfectly in removing large frescos from one wall and applying them securely to another. The colours in fresco do not penetrate very deep, and the thin layer of pigment and lime of which the painting consists may be removed by glueing several layers of calico to the wall: a slight force is then sufficient to detach the painting: it is removed to its new bed, and when firmly attached, the cloths and glue may be removed by warm water.

In concluding this notice of a beautiful art, the practice of which is still unknown in this country, let us hope that the encouragement which is now being given to British artists to cultivate fresco painting may be the means of introducing and establishing in England the grand style of historical art, and that its enlightening and refining effects may be felt by the people generally, who in seeing pourtrayed on the walls of our public buildings the deeds of their ancestors, or the sublime and beautiful creations of our poets, may venerate all that is good and noble in the institutions of our country, and each individual be reminded that he is himself a Briton, and has to uphold the honour and dignity which attaches to that name.

It is impossible to look on the historical fresco painting of Italy, recording, as it does so powerfully, the valour and genius of the Italians, without thinking on England; and reflecting that with a history more heroic, and with a genius more useful, we have nothing of the kind in painting —no public works to remind us of our illustrious ancestors. The Italians adorned their public buildings in fresco, not only with the great events recorded in their national history, but every man recalled and recorded the illustrious deeds of his ancestors, whether public or private, which could confer honour on his name and family. This noble emulation continued from generation to generation; and we see in the monuments which remain, worthy memorials of the triumphs of mind in civil arts, as well as the triumphs of war. These now, in the fallen state of Italy, are all that remain to her of past glory, and it is this which interests the traveller at every step. Who does not remember the Colonna palace at Rome? the family now a name and nothing more, yet its former deeds are written there: the principal of which was the great battle of Lepanto. Hundreds of similar examples might be cited; and the influence of this system of beautiful decoration has extended even down to the cottage, however humble, where you always find some little elegancies to remind you that you are in Italy. It is but reasonable to hope that when fresco painting shall have been introduced here under the patronage of the state, it will extend itself in a like manner to the adornment of the houses of the nobility; not only in tracing there the great actions of their ancestors which may bear comparison with those of any age or country, but in recording the great events of our own times, events which are moving and modifying the world. These are the true decorations of buildings, these are things to be proud of, and these we shall accomplish by the introduction of fresco painting. The oil portraits of our ancestors are all that remain to us, but fresco will pourtray their actions. When we reflect on the illustrious names and the illustrious deeds connected with them, there seems no bound to the field of fresco painting.

EASY LESSONS ON REASONING.

Lesson XII.

§ 1. The Dictum [or Maxim] above explained as the Universal-principle of Reasoning, will apply to a Syllogism in such a form as that of the examples given. "Every (or No) X is Y*; Z (whether some Z or every Z) is X; therefore—some, or every—Z is Y;" or "No Z is Y;" or "Some Z is not Y;" as the case may be.

And in that form every valid argument may be exhibited.

But there are other Syllogisms in other forms, to which the "Dictum" cannot be *immediately* applied, (tho' they may be reduced into the above form) and which yet *are* real Syllogisms, inasmuchas their conclusiveness is manifest from the *form* of expression, independently of the meaning of the Terms.

For instance, "no Savages have the use of metals; the ancient Germans had the use of metals; therefore they were not savages," is a valid Syllogism, tho' the Dictum cannot be applied to it as here stated. But it may readily be reduced into the form to which the Dictum does apply; by illatively-converting the Major-premise, into "men who have the use of metals are not Savages."

But the argument as it originally stood was a regular Syllogism; and so are some others also in a different form; altho' the Dictum does not *immediately* apply to them.

Accordingly, certain rules [or "Canons"] have been framed which do apply directly to *all* categorical Syllogisms, whether they are or are not in that form to which the Dictum is immediately applicable.

1st Canon. Two terms which *agree* with one and the same third, may be pronounced to agree with each other: and

2nd Canon. Two Terms whereof one *agrees* and the other *disagrees* with one and the same third, may be pronounced to disagree with each other.

The technical sense of the words "agree" and "disagree" have been explained in a former Lesson.

The two Terms which are each compared with the same third, are the Terms [or "Extremes"] of the Conclusion; viz.: the Major-term and Minor-term: and that third Term with which they are separately compared in the two Premises, is the Middle-term.

On the former of these two Canons rests the proof of affirmative-conclusions; on the latter, of negative.

§ 2. To take first a Syllogism in the form originally given: "Every X is Y; Z is X; therefore Z is Y:" or again "No X is Y; Z is X; therefore Z is not Y:" in these examples, "Y" and "Z" are in the two Premises respectively, compared with "X:" in the former example they are assumed to "*agree*" with it; and thence, in the Conclusion, they are pronounced (according to the 1st Canon) to "agree" with each other; in the latter example, "Y" is assumed to "*disagree*" with "X" and "Z," to "agree" with it; whence in the Conclusion they are pronounced (according to the 2nd Canon) to "disagree" with each other.

Again, to take a Syllogism in the other form, such as that in this Lesson, "No Savages &c." or, "No Y is X; Z is X; therefore Z is not Y;" you will perceive that the 2nd Canon will apply equally well to this as to the preceding example.

You will also find, on examination of the apparent-syllogisms [fallacies]—of which examples were given in former Lessons, and whose faultiness was there explained, —that they transgress against the above "Canons."

Take for instance, "*Some* X is Y; Z is X; therefore Z is Y†;" and again "Every Y is X; Z is X; therefore Z is Y;" or "every tree is a vegetable; grass is a vegetable; therefore grass is a tree:" in these (as was formerly explained) the Middle-term is *undistributed;*

* See Lesson ix. § 7.

† See the examp e from Hume, respecting Testimony.

[taken-particularly in both premises] the two "Extremes" therefore [Terms of the Conclusion] have been compared each with *part* only of the Middle; and thence we cannot say that they have each been compared with *one and the same third:* so that we are not authorized to pronounce their agreement or disagreement with each other.

But remember, that it is sufficient if the Middle-term be distributed in *one* of the Premises; since if one of the "Extremes" (of the Conclusion) has been compared with *part* of the "Middle" and the other, with the *whole* of it, they have both been compared with the same; since the whole must include every part. And accordingly, in the form originally given "Every X is Y; Z is X" &c. you may observe that the Middle term is distributed in the Major-premise, and undistributed, in the Minor.

§ 3. Again, take the example formerly given, of "illicit-process;" [proceeding from a term undistributed in the Premise, to the same, distributed, in the Conclusion] as, "Every X is Y; Z is not X; therefore Z is not Y;" or, "Every tree is a vegetable; grass is not a tree, therefore grass is not a vegetable;" here the "Extremes," which, in the Conclusion are compared together, are not really what had been compared, each, with the Middle. For in the Conclusion, it is the *whole* of the term "vegetable" that is compared with the term "grass;" (since negatives distribute the Predicate) tho' it was only PART of that term that had been, in the Premise, compared with "tree;" the Predicate of an "Affirmative" being undistributed.

In this instance therefore, as in the former one, the Canons have not been complied with; each of these apparent-syllogisms having in reality four terms.

You will observe also that when the Middle-term is *ambiguous*, there are, in some, *two* Middle-terms, tho' you may have, apparently, a correct Syllogism: as "*Light* is opposite to darkness; feathers are *light;* therefore feathers are opposite to darkness." The word "light" is here used *equivocally*. (See the explanation in Lesson vii. § 3 of "univocal" and "equivocal.")

So glaring an equivocation as this, could, of course, deceive no one, and could only be employed in jest*. But when there is a very *small* difference between the two senses in which a Middle-term is used in the two Premises, then, tho' the reasoning is not the less destroyed, the equivocation is the more likely to escape notice. And men are practically deceived in this manner, every day, both by others, and by themselves.

§ 4. For instance, there is an argument of Hume's (in the Work referred to in a former example and which is said to have been convincing to some persons) which may be regularly stated, thus: "nothing that is contrary to experience can be established by testimony; every miracle is contrary to experience; therefore no miracle can be established by testimony." Now the middle-term, "*contrary* to experience" admits of being understood in either of two senses: sometimes (and this is the strict and proper sense) it means "what we know by our own experience to be false;" as for instance, if several witnesses should depose to some act having been done, at a certain time and place, by a person known to me, and in whose company I was, at that time, and in a different place, I should be enabled to contradict their testimony from my own experience.

Sometimes again the expression is employed to denote "something which we have *never experienced*, and have not known to be experienced by others:" which would be the case with the ascent of a balloon, for instance, to one who had never seen or heard of such a thing; or with the freezing of water, to a king of Bantam, mentioned by Hume.

Now if the Term "contrary to experience" be understood in this latter sense in *both* Premises, then the *Major*-Premise of the Syllogism will be manifestly false; since it would imply that that king of Bantam, or any one living in a hot Country, could have no sufficient reason for believing in the existence of ice. And if the term be understood (in *both* Premises) in the other sense, then the *Minor* will be false; since a Man cannot say that he *knows by his own experience* (whatever he may *believe*, or *judge*, and however rightly) the falsity of every individual narrative of every alleged miracle.

But if the term is in each Premise to be so understood as that *each* shall be true, then, it is evident that it must be taken as *two* different terms, (in sense, tho' not in sound) no less than the term "light" in the former example.

§ 5. As for the truth or falsity of any Premise, or the sense in which any Term is to be understood, in this or that Proposition, of course no fixed rules can be given; as this must evidently be determined, in each case, by the subject-matter we are engaged on.

But tho' no rules can be given for *detecting* and *explaining* every fallacious ambiguity, it is useful to learn and to keep in mind, *where to seek* for it: namely, to look to the *Middle*-term (the argument having been first stated in a syllogistic form) and observe whether *that* is employed precisely in the same sense in each Premise.

As for the Terms of the *Conclusion*, there is not much danger of error or fallacy from any possible ambiguity in one of these; since in whatever sense either of these is employed in the Premise, it will naturally be understood in the Conclusion, in that same sense; tho' in itself, it might admit of other meanings.

If, for instance, any one should conclude that the "*Plantain*" is "worth cultivation in places where it will flourish, because it produces a vast amount of human food," you would understand him to mean, both in the Premise and the Conclusion, the fruit-bearing "Plantain" of the West Indies, and not the herb that grows in our fields.

Sometimes however, in a long train of Reasoning, a person may be led into error, by remembering merely that a certain Proposition *has* been proved, while he forgets *in what sense* it was proved.

§ 6. There are six rules commonly laid down, as resulting from the two Canons above mentioned; by which rules any apparent Syllogism is to be tested: since none can be objected to which does not violate any of these rules; and any apparent-syllogism which does violate any of them, is not, in reality, conformable to the above Canons.

i. A Syllogism must have three, and only three, Terms.

ii. It must have three, and but three, Propositions.

iii. The Middle-term must be *one* only, [*i.e.* not *double*] and therefore must be *unequivocal*, and must be (in one at least of the Premises) *distributed*.

iv. No Term is to be distributed in the Conclusion that was not distributed in the Premise: [or, there must be no "illicit-process."]

v. One at least of the Premises must be affirmative; since, if both were negative, the Middle-term would not have been pronounced either to agree with each of the "Extremes," or to agree with one and disagree with the other; but to *disagree* with *both;* whence nothing can be inferred: as "No X is Y; and Z is not X," evidently affords no grounds for comparing Y and Z together.

And vi. If one Premise be *negative*, the *Conclusion* must be negative; since—inasmuch as the other Premise must be affirmative—the Middle will have been assumed to agree with one of the "Extremes" and to disagree with the other.

All these rules will have been sufficiently explained in what has been already said.

And from these you will perceive that in every Syllogism one Premise at least must be Universal; since if both were Particular, there would be either an undistributed Middle, or an Illicit-process.

* Most jests, it is to be observed,—such as puns, conundrums &c.—are *mock-fallacies*.

For if each Premise were I (Particular-affirmative) there would be no distribution of any Term at all: and if the Premises were I and O, there would be but one Term,—the Predicate of O [the Particular-negative]—distributed; and supposing that one to be the Middle, then the Conclusion (being of course *negative*, by rule vi) would have its Predicate—the Major-term—distributed, which had not been distributed in the Premise. Thus "Some X is Y; some Z is not X," or again "Some X is not Y; some Z is X," would prove nothing.

And for the like reasons, if one of the Premises be Particular, you can only infer a Particular Conclusion: as "every X is Y; some Z is X," will only authorize you to conclude "Some Z is Y;" since to infer a Universal would be an "*illicit-process of the Minor-term.*"

§ 7. What is called the "*Mood*" [or "Mode"] of a Syllogism, is, the designation of the three Propositions it contains (in the order in which they stand) according to their respective Quantity and Quality; that is according as each Proposition is A, E, I, or O.

Looking merely to the arithmetical calculation of *permutations*, (as it is called) all the possible combinations of the four Symbols, by threes, would amount to 64. For each of the 4 admits of being combined, in *pairs*, with each of the 4: [as A, with A, with E, with I, and with O; &c.] which gives 16 pairs; and each of these 16 pairs admits of being combined with each of the 4 as a third; which gives $16 \times 4 = 64$.

But it is plain that several of these combinations are such as could not take place in a Syllogism. For instance E, O, O, could not be a Mood of any Syllogism, since it would have *negative-premises* (See Rule V.) nor I, O, O, which would have both premises *particular;* and so with many others.

There will be found on examination to be in all only eleven Moods in which any Syllogism can be expressed: and these are, A, A, A,—E, A, E,—A, I, I,—E, I, O,—A, E, E,—A, O, O,—A, A, I,—I, A, I,—E, A, O,—O, A, O,—A, E, O.

§ 8. What is called the "*Figure*" of a Syllogism, is, the *situation of the Middle-term*, in the two Premises respectively, with relation to the two "Extremes" [or Terms] of the Conclusion,—the Major, and Minor-terms.

It is evident that all the possible collocations of the Middle must be four: since it must be either the Subject of the Major-premise and the Predicate of the Minor; or the Predicate of each; or the Subject of each: or the Predicate of the Major and Subject of the Minor.

On looking to the examples originally given, you will see that a Syllogism in that form ["Every X is Y; Z is X; therefore Z is Y"] has the *Middle-term made the Subject of the Major-premise*, and the *Predicate of the Minor*.

This is called the *First Figure;* and it is to Syllogisms in this Figure above that the "*Dictum*" above-mentioned will *at once* apply.

§ 9. If you look to the form afterwards exemplified, (§ 1 of this Lesson,) as "No savages, &c.," or "No Y is X; Z is X; therefore Z is not Y," you will see that the Middle is the *Predicate of each* Premise. This is called the *Second Figure.* And in this, evidently none but *negative* Conclusions can be proved; since one of the Premises must be *negative*, in order that the Middle-term may be (by being the *Predicate* of a *Negative*) distributed.

Again, the Middle-term may be the *Subject of each* Premise. And this is called the *Third Figure.* Thus "Some X is Y; every X is Z; therefore some Z is Y;" is a correct Syllogism in the third figure, being conformable to the first *Canon.*

And the Syllogism here given as an example may be easily reduced to the first Figure, by simply-converting the Major-premise, and taking it for the *Minor;* [*transposing* the Premises] which will enable you to infer the simple-converse of the Conclusion: as "Every X is Z; Some Y is X; therefore Some Y is Z:" and this implies that "some Z is Y;" since (as was explained formerly) the simple-conversion of I is *illative.*

For instance, "some painful things are salutary; every thing painful is an object of dread; therefore some things which are objects of dread are salutary;" this, though a valid Syllogism as it stands, may be reduced, in the manner above stated, to the first Figure.

In this, or in other ways, any Syllogism in the 3d Figure may be easily "*reduced*" (as the technical phrase is) to the 1st Figure.

In this 3d Figure you will find that none but *Particular* Conclusions can be drawn. To infer a Universal, would always, you will find, involve an "*illicit process* of the Minor-term." For if the Premises are both Universal, which (as we have already seen (§ 6.) they must always be, to warrant a Universal Conclusion) then, supposing them to be A, A, there will have been,—in this third Figure—no term distributed except the Middle; (affirmatives not distributing the Predicate) and consequently no term can be distributed in the Conclusion; which must therefore be I.

And if the Premises be E and A, there will have been (besides the Middle) only one term,—the Predicate of E,—distributed; and consequently only one term can be distributed in the Conclusion; and that one must be the Predicate of *O;* since the Universal [E] would have *both* terms distributed.

§ 10. The third Figure might be called the "*exceptive*" or the "refutatory" Figure; (or, agreeably to the expression of the Greek writers, the "enstatic;") as being a very natural form of expressing arguments which go to establish the *contradictory of some Universal* Proposition, that any one may have maintained, or that may be generally believed.

For instance, if any one were speaking of "metals" as being, *universally*, "conductors of heat," you might *adduce* "Platina" as an *exception.* Or should any one contend that "no agent incapable of distinguishing moral good and evil (as for instance, a madman) can be deterred from any act by apprehension of punishment," you might refute this, by adducing the case of a brute,—for instance, a dog—deterred from sheep-biting by fear of punishment. And such arguments would fall very naturally into the 3d Figure.

It is, especially, the most natural form in which to express an argument—such as we often employ for the above purpose—in which the Middle-term is *a Singular-term;* as when, for instance, you prove by the example of a certain individual *, the contradictory of the Proposition (which would seem to most persons a very probable conjecture) that a deaf and dumb person, born blind, cannot be taught *language.*

The second figure may be called the "*exclusive*" Figure; being a very natural form for arguments used in any inquiry in which we go on *excluding*, one by one, certain suppositions, or certain classes of things, from that which we are seeking to ascertain.

Thus, certain symptoms, suppose, exclude "*small-pox*;" that is, prove this *not* to be the patient's disorder; other symptoms, suppose, exclude "*Scarlatina*" &c., and so one may proceed by gradually narrowing the range of possible suppositions.

These three Figures are the only ones in which any argument would, designedly, be stated. For, as to *what* is called the 4th Figure (in which the Middle-term is made the Predicate of the Major-premise and the Subject of the Minor) tho' a Syllogism so stated would be undeniably valid if conformable to the rules (as "every Y is X; no X is Z; therefore no Z is Y") this form is only a clumsy and *inverted* way of stating what would naturally be expressed in the 1st Figure; as, in this example, might be done by transposing the Premises, and simply-converting the Conclusion.

* See the Note in a former Lesson, on the case of Laura Bridgeman.

MISSIONARY HYMN.

WHERE rolls the stormy billow
Along the troubled deep;
Where verdant prairies pillow
The sunbeams as they sleep;
Where hills with heaven are blending;
Where spreads the dreary waste;
Where torrents are descending,
The Gospel heralds haste.

Where perfume-breathing flowers
Shed fragrance on the gales
That sweep through rosy bowers
Of sunny Persia's vales;
Where o'er the snow-clad mountains
Swells China's busy hum;
Where flow those olden fountains,
The gladsome tidings come.

The forest dark is hushing
The murmur of the blast,
While melodies are gushing
Unknown in ages past;
And softly, sweetly stealing
Upon the desert air,
The Sabbath bells are pealing
To wake the voice of prayer.

Old Grecian temples hoary,
Decayed with vanished time,
Shrines famed in song and story,
Reverberate that chime;
And louder, louder swelling,
It sweeps o'er Afric's shore,
With gentle music quelling
The lion's angry roar.

Lord! in Thy mercy speeding,
Thy chosen heralds guide,
That they in triumph leading
Thy people scattered wide,
From every clime and nation
May gather them in one,
Till earth with adoration
Hails the eternal Son.

Till in each mortal dwelling,
As in Thy realms above,
High songs of praise are swelling
To hymn redeeming love;
Till every home's an altar,
Where holy hearts set free
In service never falter,
Unchanged in love to Thee.

WINSLOW'S *Remains.*

No man should desire eminent stations, without comparing his strength with the burden, and having reason to hope that he shall be able to acquit himself, as the laws of God and man require.—JORTIN.

THE visible creation, it has been well said, was Adam's library. There may be times, places, and occasions, in which a page out of a book in that library may impart not only instruction to the head, but consolation to the heart. When that persevering traveller, Mungo Park, was at one period of his perilous course, fainting in the vast wilderness of an African desert, naked and alone, considering his days as numbered, and nothing appearing to remain for him but to lie down and die, a small moss flower of extraordinary beauty caught his eye. "Though the whole plant," said he, "was not larger than one of my fingers, I could not contemplate the delicate conformation of its roots, leaves, and capsules, without admiration! Can that Being who planted, watered, and brought to perfection, in this obscure part of the world, a thing which appears of so small importance, look with unconcern upon the situation and sufferings of creatures formed after his own image? Surely not. Reflections like these would not allow me to despair; I started up, and disregarding both hunger and fatigue, travelled forwards, assured that relief was at hand; and I was not disappointed." And with the disposition to wonder and adore, in like manner, can no branch of natural history be studied, without increasing that faith, love, and hope, which we also, every one of us, need, in our own journey through the wilderness of life.—STANLEY'S *Familiar History of Birds.*

CANADIAN SKETCHES.

III.

LOWER CANADA AND ITS INHABITANTS.

IN sketching some of the chief features of town-life in Canada, our attention is naturally directed to Quebec, as the spot most closely connected with the government and the history of the Colony.

This city is situated upon the north-east extremity of a promontory called Cape Diamond, three hundred and fifty feet above the level of the St. Lawrence. The river St. Charles enters the St. Lawrence at Quebec in such a manner as to form a kind of basin or harbour in front of the town; and the elevated cliff near the junction is that upon which the town is situated. Quebec is divided into Upper and Lower; the latter being built at the base of the promontory, nearly on a level with high-water mark; and the former on the summit of the cliff; the communication between the two being maintained by a long, narrow, winding, and extremely steep street. The highest part of the promontory is crowned by the citadel. The upper town contains the government buildings, the residence of the governor, the military force, and the most opulent of the inhabitants, and is altogether a cheerful and handsome place. The lower town is much more crowded and mean in appearance, inconvenient, and not kept in a clean state: the streets are narrow; and the houses have a gloomy and monotonous appearance. Many of the dwellings are built of wood, but the warehouses are formed of stone, and more worthy of the character of the place. It has been well observed, that in going through the lower town, a traveller, accustomed to France and its port-towns, is at once sensible of the origin of the race who first colonized this part of the world: high houses with long folding windows; narrow dirty streets; very little shop-window display; and as little outward symptoms of business—are the characteristics.

In connection with the citadel on the top of the cliffs are several ranges of barracks; none of them very handsome edifices, but large and durable; the one called the artillery barracks comprises a gunners' barrack, the ordnance offices, storehouses, and an armoury, in the latter of which twenty thousand stand of arms of every description are always kept ready in perfect order. The garrison usually consists of two regiments of the line, two companies of artillery, and one of sappers and miners; besides which there are militia, cavalry and infantry, always available; so that the place is well protected.

The Protestant Cathedral is a plain modern edifice; and the Roman Catholic Cathedral is a large building with a heavy dome and spire. Among the other public buildings are the Government House, the Presbyterian Kirk, the Hotel Dieu, the Ursuline Convent, and the Gaol. Many of the public and private buildings are roofed with tin, respecting which Sir R. Bonnycastle makes these remarks:—

The tin spires of the churches, and the roofs of the best houses, give it (Quebec) a lively appearance, and one very different from those of Europe, when viewed from the river. It is singular to see these bright coverings glistening in the sun, years after they were originally laid over the buildings, although for a great part of the time rain and snow pour over them. The whole secret of preventing oxidation consists in fastening the sheets of tin with tinned nails, in such a manner that the wet of the atmosphere never touches the nails, or the holes made by them in the tinned iron. These roofs, highly useful as they are in affording a free passage for the body of snow which lodges on them when the thaw commences, and also for the safety they afford from fires and chimneys, have nevertheless their inconveniences. They are of course very expensive; and if, by the neglect of the workmen who put them on, or by any damp the sheets of tinned iron may have previously contracted, they become oxidized and holes are formed, which soon become large, and give much trouble. Sometimes the

whole side of a roof must be taken off if the slightest repair, which the soldering-iron cannot effect, becomes requisite.

Before noticing the inhabitants, we will visit the other important town of Lower Canada, Montreal. This, though not occupying so high a rank in government and military affairs as Quebec, is the first in size and commercial importance. The city stands upon an island in the St. Lawrence, about thirty miles in length by six or eight in breadth, occupying part of the southern shore of this island. The bank of the river on which Montreal is built has a gradual elevation of from twenty to thirty feet, sloping again at the back of the town, where there is a canal to carry off any accumulated water. Including the suburbs, it is much more extensive and somewhat more populous than Quebec; but it resembles the latter in being divided into an upper and a lower town. The whole of the lower town has a gloomy and uncomfortable appearance, the streets being narrow and incommodious. It consists of one principal street for shops and trade, which runs parallel to the river, with others crossing it at right angles and also intersecting another street which separates the upper from the lower town.

The upper town contains several spacious public buildings, with a number of fashionable dwelling-houses, built of stone; and the villas in the neighbourhood have an imposing appearance. An esplanade, called the Champ de Mars, is appropriated to the exercise and review of troops. Among the public buildings, the new Roman Catholic Cathedral is said to be the most splendid place of worship in the whole of America. The foundation-stone was laid in 1824, and it was opened for public worship in 1829. The length of the building is two hundred and fifty feet, and the width two hundred and thirty. The style of architecture is taken from the rich Gothic of the thirteenth and fourteenth centuries. It has six massive high towers; and between these along the roof is a promenade twenty-five feet wide, elevated more than a hundred feet from the ground. It has one superior altar and six of less grandeur; and is provided with five public, and three private entrances. The eastern window behind the altar is seventy feet high by thirty-three broad; while the altars, the bells, the clocks, and all the interior arrangements, are on a corresponding scale of magnitude. Eight thousand persons frequently assemble in it at one time; and it is capable of holding twelve thousand.

The principal English church at Montreal is a handsome and spacious edifice; the Scotch kirk a plain and unadorned one. The government-house, court-house, and prison are substantial buildings, but without any pretensions to architectural beauty. There is an English University, where the various branches of a polite and learned education are taught; and a Natural History Society, which has been of great use in illustrating the natural history, and unfolding the vast resources of America. Among other buildings are a Mechanics' Institution, a General Hospital, and a well-conducted news-room.

We shall presently explain the tenure of land in Lower Canada; but we may here state that the whole island of Montreal is comprised in one "Signiory," and is claimed by the Seminary of St. Sulpice, which consists of twenty members and four assistants. They discharge the whole parochial duties for the Roman Catholic population of the town and suburbs; and they maintain, in whole or in part, a college, at which about two hundred young men are educated in the classics and sciences. They also educate, at various schools which they have established, more than thirteen hundred scholars. The revenues of the seminary have been estimated at 7000*l.* per annum. The feelings of the Protestant inhabitants have been often much mortified, in being compelled to submit to demands for the support of institutions contrary to their principles; but, we believe, the recent changes in the government of Canada have included certain modifications in the powers and privileges retained by the Seminary of St. Sulpice.

Montreal enjoys a considerable trade, and possesses several manufactures. There is a cast-iron foundry; and steam-engine machinery is made in the town. There are likewise ship-yards, breweries, distilleries, and other large establishments. Montreal cannot boast of any wharfs; but the ships and steamers lie quietly in tolerably deep water, close to the clayey bank in front of the city. From its position, Montreal will probably always constitute one of the greatest commercial emporiums of America; and it must increase in magnitude and importance, along with the rapid improvement and increasing population of the surrounding districts. The trade is not suspended in Winter as at Quebec, for during that season, thousands of sledges come in from all directions laden with agricultural produce, frozen carcasses of beef and pork, firewood, and other articles. In return there are given manufactured goods of all kinds, the warehouses and markets being always well supplied. In Summer vast rafts of timber pass Montreal for Quebec; and boats of a rude construction bring down the productions of the upper country. The St. Lawrence, near Montreal, is always, except in the depth of Winter, the abode of a numerous floating population, presenting many characteristic features. First, there are the *voyageurs*, or Canadian boatmen, who have gained such notoriety in connexion with the fur-trade. This occupation, since the amalgamation of the Hudson's Bay and North-West Companies, has in a great measure left Canada; and the voyageurs now transport baggage and passengers from Upper to Lower Canada, and *vice versâ*, their skill and experience enabling them to overcome the difficulties of the rapids in the St. Lawrence and the Ottawa. Then there are the *lumberers*, who cut wood in the upper districts, make it up into rafts, and bring these rafts down to Montreal. Besides these there are the crews of numerous steam-boats, schooners, and boats, engaged in various kinds of traffic on the St. Lawrence.

In order to gain some insight into the character of the inhabitants of Lower Canada, it will be desirable to separate them into three classes—the early French settlers—the inhabitants of townships—and those of the large towns, such as Quebec and Montreal.

Canada was discovered and colonized at a time when the ancient *feudal* customs were not yet extinguished in Europe; and it was parcelled out in accordance with those customs. However, as the settlements of the country gradually acquired strength and consequence, and its government became a subject of more immediate solicitude to the French crown, a variety of modifications were, from time to time, introduced in the feudal code, that tended on the one hand to abridge the exorbitant privileges of the seigneur, and on the other to add to the independence of the vassal. Hence arose a singular kind of tenure of land, which prevailed nearly all over Lower Canada until 1790, and still retains its prominence in the older districts.

By the ancient custom of Canada lands were held immediately from the King *en fief*, or *en roture*, on condition of rendering fealty and homage on accession to the seignorial property; and in the event of a transfer by sale, it was subject to the payment of a fifth part of the whole purchase money; and this custom is still retained. The holders of land *en fief* are bound to grind their corn at the *moulin banal*, or the lord's mill, where one-fourteenth part of it is taken as *mouture*, or payment for grinding; to repair the highways and by-roads passing through their lands; and to make new ones, which, when opened, must be surveyed and approved by the grand voyer of the district. Various other duties exacted from the landholder by the seigneur or lord of the fief would seem, to persons of English habits, to render the feudal tenure of Lower Canada rather a burdensome and unwelcome one. But,

in looking a little further into the situation of an early settlement, it will perhaps be found that the feudal system is the best calculated to aid and promote the first steps of colonization, from the circumstance of its requiring less capital, and of its concentrating the energies of a new settlement, in such a way as to enable the settlers mutually to assist each other; whilst at the same time they enjoy the countenance, aid, and protection of the seigneur, who is himself interested in the prosperity of a rising colony that is to give increasing value to his property.

The French inhabitants in the rural districts of Lower Canada are still nearly the same people, in dress, manners, and occupations, as they were before the country passed into the possession of the English. They constitute, in effect, a numerous body of landholders, who live by the produce of their own labour from their own property. Unlike their neighbours of the United States, they show no tendency to a roving disposition; they cling with pertinacity to the spot which gave them birth, and cultivate with industry and contentedness the little plots of land which have fallen to their share.

The writer of *A Political and Historical Account of Lower Canada*, gives the following account of the state of the people as to comforts:—

The comforts of the people, if compared with any other nation, are wonderfully great; their food, from their French habits, consists not of animal food to the same extent as that of the richer English, but is, nevertheless, nourishing and abundant. No griping penury here stints the meal of the labourer, no wan and haggard countenances bear testimony to the want and wretchedness of the people. I may say, I believe, without exaggeration, that throughout the whole Canadian population no instance can be found of a family unprovided with the complete and comfortable means of subsistence; the food, indeed, is oftentimes coarse, but always wholesome.

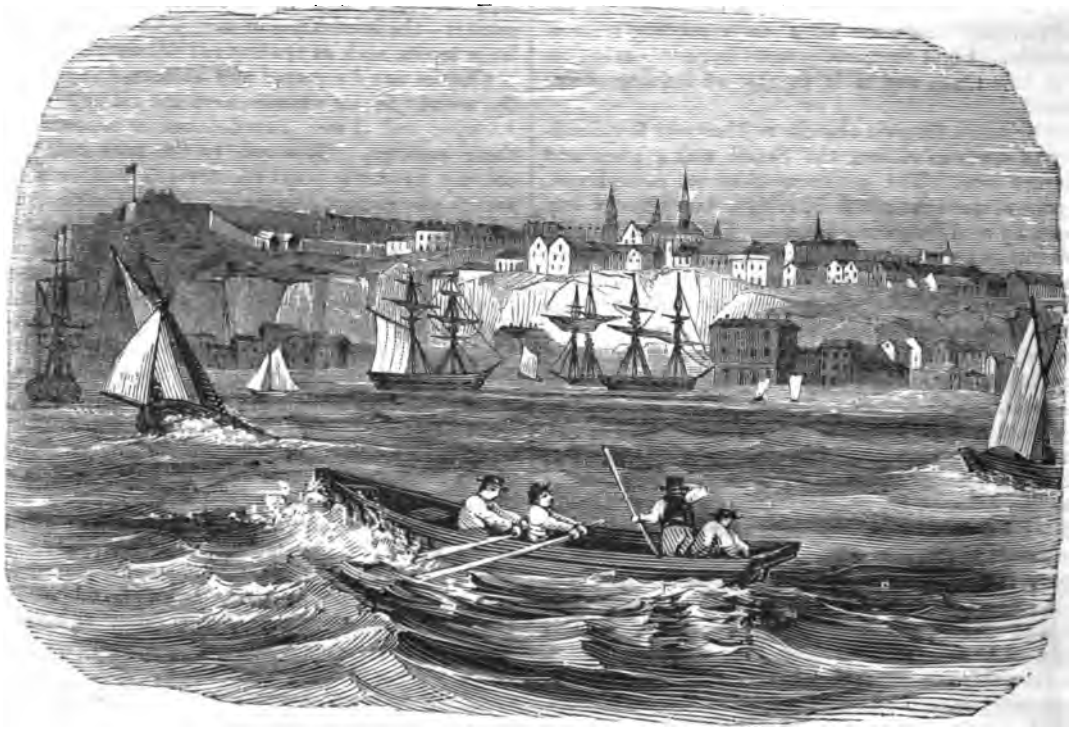
From the length of the winter it is found necessary to kill in the autumn such stock as is intended for the winter's food; a great portion is immediately salted; some part is frozen; and thus, though during the early part of the winter and the latter part of the summer the population live on fresh food, still for a great portion of the year their chief animal food is salted.

The people of the "townships" of Lower Canada differ greatly from the French dwellers in the earlier settled districts. The "townships" originated principally by the grants of land, on the part of the Crown, to military officers and persons who were deemed worthy of reward, whether English or not. Thus a motley population of English, Americans, Scotch, Irish, Dutch, and Germans, has sprung up; all carrying with them the habits and tone of thought of their respective countries.

These inhabitants of the various townships seem, on the whole, to be provided nearly as well as the French Canadians with the necessaries of life; but as their tastes are more diverse, the difficulty of consulting them is greater.

The population of the towns is distinguished by few peculiarities that are not common to the inhabitants of populous places generally. Here we find the same gradations of rank, the same assumptions on the one hand, and denials of superiority on the other, that are incident to similar communities. The circumstance of the two chief places of the province being garrison towns, serves also to give a certain complexion to society, and to give rise to much gaiety.

"However remote from the vortex of the *haut ton* on this side of the Atlantic," says Mr. Bouchette, "the higher circles are by no means strangers to the delicacies, etiquette, and refinements of European society; and by the agreeable union of French and English manners, that forms so peculiar a feature in the society of Canada, a degree of vivacity prevails, which holds a medium course between the austerity of English reserve and the ebullition of French rhapsody."



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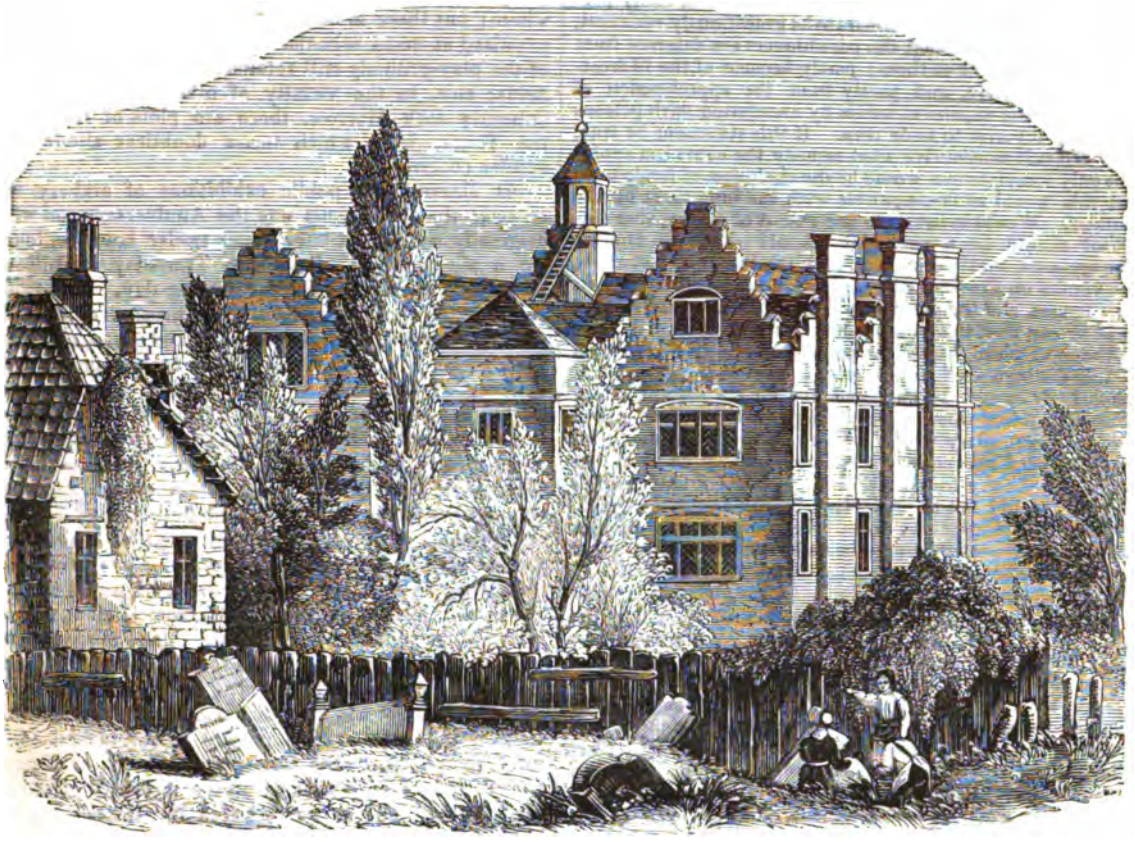
HISTORICAL NOTICE OF HARROW SCHOOL.



THE SCHOOL, AS SEEN FROM THE CHURCHYARD.

II.

From the nature of the foundation of John Lyon, it must be evident that few persons in modern times are so situated as to derive much benefit from the Founder's benefaction. It is limited to Harrow, a place inhabited chiefly by farmers and labourers. To the former the charity would have been available had any provision been allowed to them in boarding or clothing their children, or any means of support held out to them when removed to the University: but with the exception of four small exhibitions no such assistance is given. The objection applies still more forcibly to the children of the labouring classes. The education is strictly classical, and the parent must be at great expense in supplying books, clothes, &c. Thus it is not remarkable that so few parents have claimed the benefit of the foundation for their children. The revenues of Lyon's estates are considerable, but it has happened, unfortunately for this foundation, that those portions of the property which have received the greatest increase in value were appropriated by him to other purposes,—such as the repairing of roads, &c., in the neighbourhood of his own home. There are also many small charitable bequests.

The benefit derived by the parishioners of Harrow from their free school not being commensurate to their expectations, was for many years a source of uneasiness and imagined injustice to many of them; when at length in the year 1809 a portion of them formed a committee among themselves with the avowed intention of attempting by legal means to confine the benefits of the institution to its ancient narrow limits, and to correct such other abuses as time or innovation had effected. An appeal was therefore made to the Court of Chancery, and was heard before the Master of the Rolls, Sir William Grant, who on the 17th August, 1810, after much luminous reasoning, pronounced judgment in favour of the school as at present constituted; and has thus probably fixed it on a sure basis which no one hereafter will attempt to disturb.

The petition embraced three leading points:—*First*, the removal of such of the governors of Harrow School as the petitioners contended not to have been duly elected. *Secondly*, the better administration of the revenues of the charity, and *Thirdly*, an alteration in the existing constitution of the school. The first two points were subservient to the main object expressed in the last. With regard to the election of governors the Master of the Rolls dismissed that part of the information, on the ground that the court claimed no jurisdiction over bodies corporate. On the second point he declared his persuasions that the governors had administered the revenues of the charity to the best of their judgment. The third purpose of the petitioners was a complete change in the system of the school which they conceived no longer answered the purposes of the foundation; and

that with that view, the whole of the expenditure was consequently misapplied. They maintained, that considering the small proportion of free scholars the income of the founder was rather expended for the commodious education of the rich, than the gratuitous instruction of the poor. They did not allege that the school was not commodious; that the teachers were not competent; or that any children of the parish were not carefully taught when admitted.

At first sight it seems, that the benefit of the institution is within the reach of the inhabitants, as far as they choose to avail themselves of it; but it is said that so many persons, not entitled as parishioners to be gratuitously educated, resort to this school, that the parishioners are deterred from sending their children there; partly because of the ill treatment they receive, and partly from the apprehension of their acquiring expensive habits by associating with persons of a rank superior to their own. If this statement be true, it is difficult to conceive what remedy the court can apply. The only complete one would be the exclusion of foreigners; but this would be incompatible with the intentions of the founder. Would it not go to the extent of saying, that this school should be a parochial school? Yet the founder has declared, that the master may receive over and above the youths on the foundation, so many foreigners as may be well taught, and the place may contain; it is not attempted to be shown that this number has ever been exceeded. But in the next place, would the parish gain by the conversion of this distinguished seminary of learning into a parochial school? It cannot be supposed that for the present salary a man of talent would supply the place of master; and to give a large salary would be the least likely mode for securing his diligence in the sphere to which he would be confined. As to a limitation in the number of foreigners, it certainly would not be productive of any advantage. I do not know the numbers from which bad habits may be learned, or ill treatment may be suffered; but is it true that to the alleged causes the paucity of the present scholars on the foundation is to be attributed? Why should Harrow School be distinguished from other schools in which the admission of foreigners does not prevent the parishioners from taking the benefit of the foundation? Upon the whole of this part of the case, it appears to me, that, taking the evidence together, the alleged conspiracy against the parish boys is not made out; the number of instances of ill treatment proved, is no greater than, in the course of the years which have passed, might have happened from accidental circumstances; while the statement of circumstances in which there was no such treatment seems to negative the uniform hostility alleged to prevail. Several witnesses, and among them parishioners, say that there are but few parish scholars, because there are but few parishioners who wish to give their children a classical education. Giving credit to them, the number there at any time would be small; I should therefore be unwilling to take any step which might impair the general utility of the school, or lower it to the foundation. In some schools the master has an annual allowance for every scholar taught on the foundation; to this I see no objection: but any restriction as to the number, except that which the founder has prescribed, would not be efficacious; and I cannot consent to a reference to the Master to frame a scheme with a view to any such object. It has been said that if the parishioners do not wish to send their children to this school, or are prevented from doing so by causes which this court cannot control, the foundation ought not to be applied to expenses attending the school, but the parish ought to receive the benefit some other way. The parishioners however must be content to receive the benefit in the way the founder has thought fit to give it. The school is not to be let down because within any given period few or no parish scholars are sent to it. The founder has declared that there shall be at Harrow a grammar-school for ever: and has provided funds for such a foundation. In that grammar-school parish children are to be taught gratuitously: but the founder also meant to encourage other scholars, and to impart every benefit to them, except gratuitous teaching. The school was built of larger dimensions, and at a greater expense, with a view to their accommodation. The play-grounds were adapted for the whole number of the scholars, and not for the parishioners only; nor are the exhibitions to fail, because no parishioners are qualified to go to the University: others are to have the benefit of them.

In conformity with the above opinions the Master of the Rolls ordered a decree to be framed; and thus this question, which in its results involved the interests of many other chartered schools besides that of Harrow, was finally settled.

The practice of archery was coeval with the establishment of the school. It was ordered by the statutes that every boy should possess "bow-shafts, bow-strings, and a bracer, to exercise shooting." Mr. Ackermann observes that this custom has often been considered as singular and peculiar to Harrow School, an idea which has probably arisen, from the longer duration of it there than elsewhere; but there is no doubt that archery was formerly practised at many schools. At Eton College a portion of the play-grounds still retains the name of the shooting fields; also, in the vicinity of other schools of equal antiquity with Harrow, there are plots of land called the Butts; both which terms doubtless allude to a similar custom.

At Harrow the public exhibitions of archery were annual: the 4th August was the Anniversary, on which originally six, and in later times twelve boys, contended for a silver arrow. The first Thursday in July was afterwards substituted for the former day. The twelve competitors were attired in fancy dresses of spangled satin; the usual colours were white and green, and rarely red; green silk sashes, and silken caps completed the costume of the archers. The shooter who first shot twelve times nearest to the central mark was proclaimed the victor, and carried home the silver arrow attended by a procession of boys. In the early volumes of the *Gentlemen's Magazine*, many names of the successful competitors are recorded. On the 2nd August 1744, an Indian chief went to see the diversion and was much pleased with it; but signified, through his interpreter, that if they would give him leave to shoot, he would carry off the prize. On the 4th July, 1765, some Indian warriors were also present at the exhibition. The last silver arrow was contended for in July, 1771, and was gained by the late Lord Spencer, then Lord Althorpe, who had his likeness taken at the time in the archer's dress in which he won the prize. This picture was returned to his lordship in 1817, by the Rev. Henry Drury, of Harrow, who then succeeded to it with other property of the late Dr. Heath. The arrow prepared for the ensuing year is now in the possession of Mr. Drury. We have not found the value of the silver arrow to have been recorded except in two years, viz., 1730 and 1735, when it is stated to have been 3*l*. In the year 1816 an attempt was made to revive the custom, and the arrow was won by Master Jenkins.

The Butts at Harrow were a remarkable and beautiful spot, situated on the left of the London road, to a person entering the village from thence. They were backed by a lofty and insulated knoll, which was crowned with very majestic trees; upon the slope of this eminence were cut rows of grassy seats gradually descending, "worthy of a Roman amphitheatre," as Dr. Parr observed of it. This favourite spot was some years since stripped of its wood, and the knoll itself has at length entirely disappeared by the unrelenting efforts of miners for brick earth. The few other particulars of the arrow shooting which remain were communicated by Dr. Parr to Mr. Ackermann, by which it appears that whoever shot within the three circles which surrounded the central spot, was saluted with a concert of French horns; and the entertainments of the day were concluded with a ball in the school room to which all the neighbouring families were invited.

The abolition of a practice, which, if not originally so, had at least by age become singular, cannot but be a subject of regret to all who are attached to old institutions, and who have daily to lament the loss of some relic of older times, dropping off, and quickly passing into oblivion.

But the motives which induced the late master, Dr.

Heath, to abolish this ancient custom, were dignified and just; they are stated to have been the frequent exemptions from the regular business of the school, which those who practised as future competitors for the prize, "claimed, as a privilege not to be infringed upon:" and also on account of the band of profligate and disorderly persons which this exhibition attracted to the village from London and its vicinity—and these circumstances had become at length so injurious to the discipline and morals of the school, that after some vain attempts to correct the evil, the total abolition of the custom was found necessary. Dr. Heath first attempted to curtail the number of rehearsals previous to the great day. The boys took offence and refused to shoot unless they could do so as formerly; when, taking advantage of this feeling, the Doctor abolished the custom altogether, and introduced the more intellectual exercise of public speaking.

The public speeches are holden in a long room, built for the purpose, adjoining the head master's house, on the first Wednesdays of June and July; and are usually well attended by old Harrovians, the gentry of the neighbourhood, and the friends of the boys. Towards the end of June the annual audit of the governors is held, when the captain of the school delivers a Latin oration, in which allusion is made to some of the public events of the past year or to such as more immediately affect the welfare of the school. The captain is presented by the governors with a book of the value of two guineas. On the first speech day the Peel prize essay is recited; and on the second day three other prize compositions. The first prize was founded by Sir Robert Peel, and consists of a gold medal for the best Latin prose essay; the other three prizes, founded by the governors of the school, are each a present of books of the value of five guineas for the best Latin Lyric Ode, for the best copy of Latin Hexameters, and for the best copy of Greek Iambics.

On the 6th July, 1820, the exhibition of speeches was more than usually brilliant, on account of the opening of a magnificent new school room, and the establishment of three prizes (two poems in Latin and one in Greek), originating with the head master, the Rev. Dr. Butler. The buildings connected with the school had been enlarged and partly rebuilt with much taste and skill by Mr. Cockerell. In September, 1839, a new chapel was consecrated by the Diocesan and Visitor, his Grace the Archbishop of Canterbury. The school house, chapel, and other buildings were erected by subscriptions among the numerous persons educated at Harrow

The system of instruction at Harrow is similar to that of Eton Mondays, Wednesdays, and Fridays are whole school days. Tuesday is a whole holiday, Thursday and Saturday are half holidays. On Sundays the boys are in school from eight till nine, for religious instruction; but on the other days at half-past seven. The hours of school are devoted solely to saying the lessons which are prepared out of school, and rehearsed to the private tutor in his pupil room. On holidays the boys are required to answer at the call of "the bill" every two hours. The bills are called over in the school, in alternate weeks by the head master or one of his assistants, and by the under master or his assistant. The head master has four assistants, and the under master has one. The discipline of the school is also partly supported by monitors, who are selected from among the senior boys of the sixth form; they are ten in number; and they have the power of setting punishments to all boys below the fifth form, for violating the rules of the school. The house of the head master continues according to the intention of the founder, to be merely a boarding-house. There are other boarding-houses kept by private individuals, but under the control and inspection of the masters. The boys are locked up in their houses at an hour varying with the duration of daylight, and gradually extending from a quarter past five in the depth of winter, to a quarter to nine about midsummer. The annual charges for each boy, in an assistant's house, for boarding, washing, and private tuition amount to one hundred and twenty guineas; for schooling and school charges eleven guineas; but in the head master's house the annual charge is one hundred guineas. The number of boys varies between two and three hundred, and of these not more than about twelve or fifteen are upon the foundation.

PROGRESS OF VEGETATION ON OLD BUILDINGS.

SEEDS, to our eye invisible, will find
On the rude rock the bed that fits their kind;
There, in the rugged soil, they safely dwell,
Till showers and snows the subtile atoms swell,
And spread th' enduring foliage;—then we trace
The freckled flower upon the flinty base;
These all increase, till in unnotic'd years
The stony Tower as grey with age appears;
With coats of vegetation, thinly spread,
Coat above coat, the living on the dead:
These then dissolve to dust and make a way
For bolder foliage nursed by their decay:
The long-enduring Ferns in time will all
Die and depose their dust upon the wall;
Where the winged seed may rest, till many a flower
Show Flora's triumph o'er the falling tower.—CRABBE.

SOLOMON, who is so much celebrated in Scripture for his wisdom and knowledge, hath purposely written a book, the main argument whereof is to inquire, wherein the chief happiness of man doth consist: and having in the former part of it shewed the insufficiency of all other things that pretend to it, he comes in the conclusion to fix it upon its true basis, asserting every man's greatest interest and happiness to consist in being religious: "Let us hear the conclusion of the whole matter; Fear God, and keep his commandments; for this is the whole duty of man:" that is, the serious practice of Religion is that which every considerate man, after all his other disquisitions, will find to be his chief interest, and that which doth deserve his utmost care and diligence.—BISHOP WILKINS.

VIRTUE must be formed and supported, not by unfrequent acts, but by daily and repeated exertions. In order to its becoming either vigorous or useful, it must be habitually active; not breaking forth occasionally with a transient lustre, like the blaze of a comet; but regular in its returns, like the light of day: not like the aromatic gale, which sometimes feasts the sense; but like the ordinary breeze, which purifies the air, and renders it healthful.—BLAIR.

WHEN Addison found the end of his life approaching, he directed his son-in-law, the Earl of Warwick, to be called; and when the young lord desired, with great tenderness, to hear his last injunctions, told him, "I have sent for you, that you may see how a Christian can die." In Tickell's beautiful Elegy on his friend, there are these lines in allusion to this moving interview:—

He taught us how to live; and oh! too high
The price of knowledge! taught us how to die.

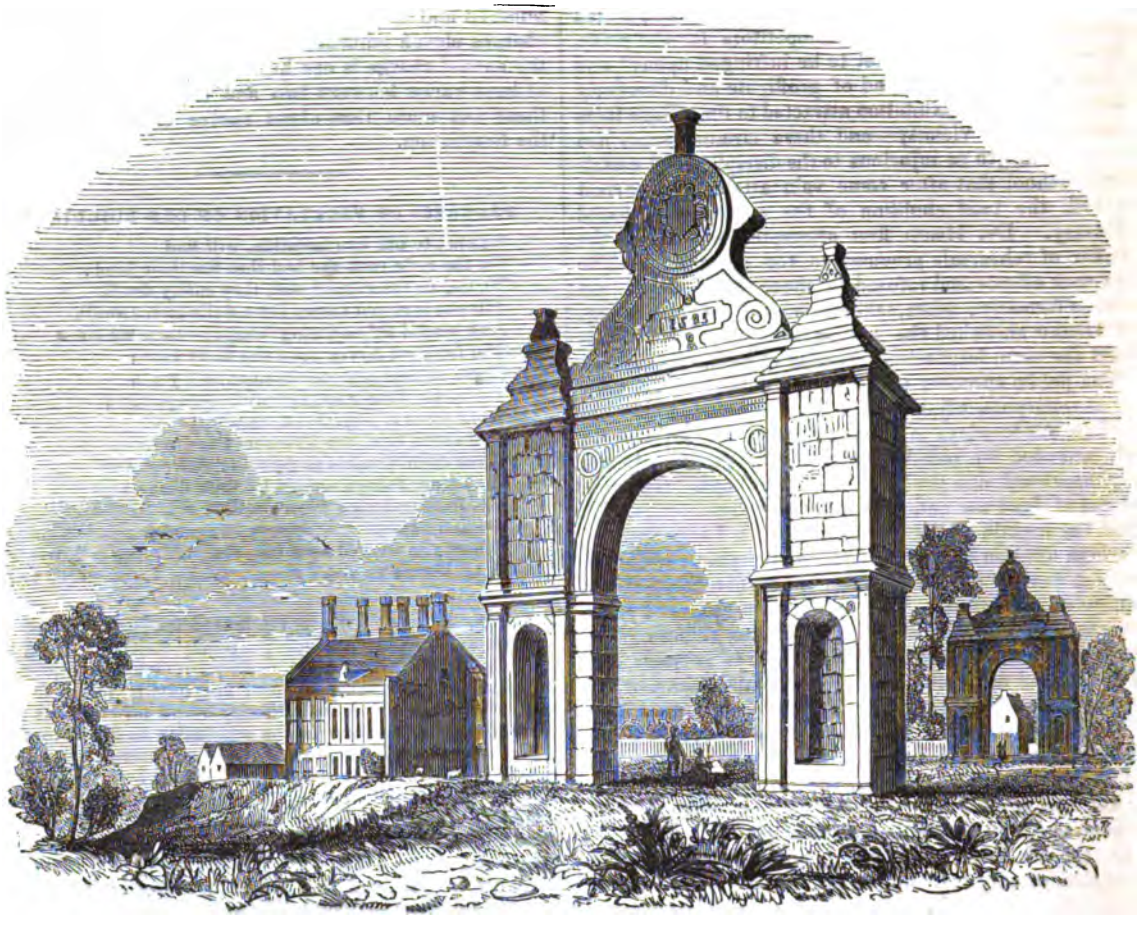
WAR, even in the best state of an army, with all the alleviations of courtesy and honour, with all the correctives of morality and religion, is nevertheless so great an evil, that to engage in it without a clear necessity, is a crime of the blackest dye. When the necessity is clear, it then becomes a crime to shrink from it.—SOUTHEY.

GOD left not the world without information from the beginning; so that wherever we find ignorance, it must be charged to the account of man, as having rejected, and not to that of his Maker, as having denied, the necessary means of instruction.—BISHOP HORNE.

RIVAL ORATORS.—Charles Fox used to say, "I never want *a* word, but Pitt never wants *the* word."

THE Christian conduct of the members of the Church reflects honour on the Church herself, and on her great Founder and Head.—BISHOP MANT.

HOLDENBY PALACE, NORTHAMPTONSHIRE.



REMAINS OF THE PALACE.

In Britain's isle, no matter where,
An ancient pile of building stands
The Huntingdons and Hattons there
Employed the power of fairy hands,

To raise the ceiling's fretted height,
Each panel in achievements clothing,
Rich windows that exclude the light,
And passages that lead to nothing.

Full oft within the spacious walls,
When he had fifty winters o'er him,
My grave Lord Keeper led the brawls*,
The seals and maces danced before him.

His bushy beard, and shoe-strings green,
His high-crowned hat, and satin doublet,
Moved the stout heart of England's Queen,
Though Pope and Spaniard could not trouble it.—GRAY

THE above lines, although more particularly alluding to the old mansion of Stoke-Pogis, in Buckinghamshire, may be considered equally applicable to the subject of our present notice. Holdenby was erected by Sir Christopher Hatton, whose graceful "brawls" are said to have excited the attention of Queen Elizabeth at a masked ball; and finding that his talents were equal to his personal accomplishments, the queen admitted him into the privy council, where "his opinion became an oracle to his sovereign;" and he was afterwards entrusted with the great seal, with the title of Lord Chancellor.

Holdenby or Holmby House, in the parish of Holdenby, is connected with a most memorable and exciting period in the history of our country. From the descriptions and remaining vestiges, it appears to have been a most magnificent structure. Indeed, Hatton esteemed it "the last and greatest monument of his youth." Camden says, "Holdenby-house, a faire patterne of stately and magnificent building, maketh a faire glorious shew;" and Norden, who wrote in 1610, describes it as

* The brawls were a sort of figure dance, then much in vogue

A very beautiful building, erected with such uniformity and so answerably contrived as for the quantity and quality is not to be matched in this land. In the hall theare are raised three peramides, very high standing, instead of a shryne, the midst whereof ascendeth unto the roofe of the hall, the other two equal with the syde walls of the same hall, and on them are depainted the armes of all the gentlemen of the same shire, and of all the noblemen of this land. The situation of the same house is very pleasantlie contrived, mounting on a hill environed with most ample and lardge fields and goodly pastures, manie young groves newly planted, both pleasant and profitable; fishe-ponds well replenished, a parke adjoyninge of fallow deare, with a large warren of conyes, not farr from the house, lyinge between East Haddon and Long Bugbye. Aboute the house are great store of hares, and above the rest is especially to be noated, with what industrye and toyle of man, the garden hath been raised, levelled, and formed out of a most craggye and unprofitable grounde, now framed a most pleasante, sweete, and princely place, with divers walks, manie ascendings and descendings, replenished also with manie delightful trees of fruit, artificially composed arbors, and a distilling house on the west end of the same garden, over which is a ponde of water brought by conduite pypes, out of the feyld adjoininge on the west, a quarter of a myle from the same house. To conclude, the state of the same house is such, and so beautiful, that it may well delight a prince.

In the year 1605 Sir Christopher Hatton obtained an act of parliament to enable him to dispose of certain lands, &c., notwithstanding a limitation or clause of perpetuity annexed to his estate. By articles of agreement with King James the First, dated 1st February, 1607–8, Sir Christopher covenanted to convey "the greate mansion-house of Holdenby," the manor with appurtenances, and messuages, and about 1768 acres of land, including the park, to the king's trustees, to the use of his majesty for life, with remainder to Charles, duke of

York, his second son, in tail male, with remainder to his majesty's heirs and sucessors. On the execution of the conveyance the king covenanted to pay to Sir Christopher certain sums of money, and to grant to him and his heirs certain privileges. He also agreed to grant to Sir Edward Coke and Lady Elizabeth his wife, (widow of Sir William Hatton,) during her life, the custody of the said great mansion-house and the park, gardens, &c., with a yearly fee of 40 marks; and to the said Lady Elizabeth "the edifices and buildings commonlie called the Dairy-house, belonging to the said great mansion-house of Holdenby, for her lodginge" during her life.

In 1625, Charles, duke of York, who succeeded his father in the throne, under the title of Charles the First, became possessed of Holdenby. In the political struggles which ensued, Holdenby was seized in common with the whole of the royal demesnes; and became memorable as the place of imprisonment of the royal sufferer.

The decisive battle of Naseby led to the total ruin of the royal cause, and the king, despairing of a reconciliation with his enemies, and finding his personal safety insecure, voluntarily surrendered to the Scotch army, then at Newark-on-Trent. Parliament immediately voted "that the person of the king shall be disposed of as both houses of the parliament of England should think fit." The Scotch, however, would not consent to deliver up the royal prisoner until the sum of 400,000*l.* had been secured to them for the alleged arrears of wages due to their army. After some debating among the Lords and Commons, it was resolved (31st December, 1646),

That Holdenby-house be the place which the houses think fit for the king to come unto; there to remain with such attendants about him as both houses of parliament shall appoint, with respect had to the safety and preservation of his person, in the preservation and defence of the true religion and libertie of the kingdom, according to the covenants.

A committee for receiving the king's person was appointed, and they nominated a number of persons to be employed in his majesty's service; they also proposed that the communion-plate which was formerly set on the altar in his majesty's chapel of Whitehall should be melted down to make plate for the royal use at Holdenby, there being none remaining in the Jewel Office fit for service: they also made an estimate of the expenses of his majesty and his retinue. These proposals were confirmed by the Commons, but the national finances becoming daily more deranged, the whole charge of the establishment was shortly after reduced to 50*l.* a day, one-third only of the original estimate.

The king reached "his princely manor of Holdenby on the 15th of February, having been something retarded by reason of white weather." Many hundreds of the gentry of the county met the royal cavalcade two miles on this side Harborough, and thousands of spectators thronged the road, and hailed his majesty with acclamations, "causing many a smile from his princely countenance." A guard of honour was drawn up to receive him at Holdenby; and he entered his palace and his prison through the great court gate with all the state and pomp of royalty. When his majesty's approach to his destination was announced at Northampton, there was great rejoicing; bells were rung, and cannon fired; "insomuch that a gallant echo made its appeal at Holmby."

The royal household was regulated by commissioners; they requested his majesty to discharge certain adherents who continued to wait upon him; the king consented, and in return requested permission of the parliament to have two or more of his chaplains and other good and learned men to attend upon him for the exercise of his conscience, and the assistance of his judgment in deciding the differences then existing respecting religion. But so little were his feelings and wishes regarded by either of the houses, that this reasonable request was at first taken no notice of, and in answer to a subsequent pathetic appeal from the king on the same subject, the Lords voted that "if the king thinks fit to admit such of his chaplains as have taken the covenant, they are inclined to give them leave." The Commons treated the royal application with silent neglect.

The commissioners and their chaplains endeavoured to prevail on the king to assent to the establishment of presbyterianism, and to conform to the new Directory; but though he was not unwilling to engage in social controversy with them, their reasoning made little or no impression; "he refused to join in 'Amen' to such praying as was against his conscience, and argued very stiffly for Episcopacy and the Book of Common Prayer." "The two chaplains preached in the chapel alternately every Sunday morning and afternoon, to the commissioners and the household; and the king did not object to any of his retinue being present, though he himself chose rather to pass the day secluded in private devotion than to sanction public religious services which he could not approve." During dinner and supper, the commissioners attended his majesty, but he declined their services, and always "said grace himself under the state." After dinner he usually played at chess. He devoted two or three hours every day to reading and religious exercises. His favourite recreation was bowling; and the green at Holdenby being out of order, he frequently rode to Althorp or Boughton to enjoy that amusement. At other times he was accustomed to walk on the long gravel walk in the garden, accompanied by some of the commissioners; one only at a time associated with him, the others keeping at a respectful distance.

While the king was at Holdenby, he was not allowed to hold any communication with his friends, except in the presence of the commissioners. Mr. Baker notices two unsuccessful attempts to convey secret intelligence to the king, one of which we give as an example of the mode of treatment to which the sovereign was subjected

On the afternoon of the 9th April, as the king was riding to Boughton to bowl, he alighted at a narrow bridge in the way (Brampton Bridge), at the further end of which stood Major Bosville disguised in a countryman's habit, with an angle in his hand, as if he had been fishing, who was detected in privately conveying into the king's hand letters from the queen and prince (Charles). On his examination before the commissioners, he deposed that he was with the king at Newcastle, who, on the morning he was delivered up by the Scotch, entrusted him with a letter for the queen, which he conveyed to her in France; and being charged with a packet in reply, he had lodged two nights in a furze bush, and three nights at a countryman's, who had furnished him with his disguise, watching a favourable opportunity for delivering it into the king's hands; and if he had not succeeded, he had resolved to give it to the king in the presence of the commissioners, though at the hazard of his life. The house of commons ordered him to be sent for from Northampton by the serjeant-at-arms, but it does not appear how he was disposed of.

While the king was at Holdenby, little was done by parliament towards redeeming the pledge they had given to open a negotiation with him. In April the Commons presented to the king "the propositions for a safe and well-grounded peace," but here the matter rested; for although the king made many concessions, and expressed the strongest desire for a personal conference; and although the Lords evinced a conciliatory disposition, and passed a vote to bring the king from Holdenby to Oatlands; the Commons replied evasively, and said they would send an answer by their own messenger. In the midst of this vacillation and delay, the person of his majesty was removed from the control of parliament, and placed at the disposal of the army.

This bold act was conceived and executed by Cornet George Joyce, who, with a party of seven hundred horse, surrounded the house at midnight of the 2nd June, and at break of day were seen by the commissioners, drawn up in front of the great gates, at the back yard where their own troops were stationed, who instead of opposing

the assailants, opened the gates and received them cordially. The commissioners sent Captain Middleton to a parley with the *chief officers*, but he was told that they had none, for that *all commanded;* and such indeed appears to have been the case, the party being composed of a selected detachment out of every regiment. It appears that one of their objects was to arrest Colonel Graves, the governor of Holdenby, and bring him to trial before a council of war, for having "scandalized the army," and being implicated in a plot to convey the king to London without the orders of parliament. Colonel Graves, however, doubting the fidelity of his troops, had been reluctantly prevailed upon by the commissioners to secure his safety by a timely retreat. This being discovered, Joyce (the person elected by his companions to command this enterprise) summoned his companions, and suspecting that Graves was gone for succours, it was resolved for "the peace-sake of the kingdom" that his majesty should be removed with all possible expedition. Although it was ten o'clock at night, Joyce went immediately towards the king's bedchamber, and insisted upon admittance to his majesty, which, after some opposition on the part of the attendants, he gained. On entering the room Joyce found his majesty in bed, and apologised for having disturbed him out of sleep; to which the king replied, "No matter, if you mean me no hurt." He then announced his intention of removing his majesty from Holdenby, which the king opposed at first, but consented on condition that the assurances given him by the cornet, were confirmed by the soldiery. By six o'clock in the morning of the 4th June, the party were mounted in marching order. The king addressed them in firm but very temperate language —he opposed this violence to his person, and requested Joyce to inform him what commission he had. "Here is my commision," replied Joyce. "Where?" inquired the king. "Behind me," returned Joyce, pointing to the soldiers. The king smiling, observed that it was a fair, well-written commission, legible without spelling, but to seek an answer with so many gallant men at his back, were to extort it; and added, "if I should still refuse, I hope you would not force me: I am your king, and you ought not to lay violent hands on your king, for I acknowledge none to be above me here, but God." Joyce replied that it was necessary for his majesty to depart, and he trusted he would accompany them willingly. The king stated that Joyce the preceding night engaged that he should retain his servants, be treated with honour and respect, and not be forced in anything contrary to his conscience; these stipulations were put to the soldiers and carried by general acclamation. The king retired, and the commissioners began to interrogate the troops. Lord Montagu, holding the written authority of the parliament in his hand, said, "Gentlemen, we are entrusted with the care of the king by both houses; will you sanction Cornet Joyce's proposition?" and was answered by a cry of "All;" "All." The other commissioners protested in the strongest terms against this act, but to no purpose: the degraded monarch and his retinue quitted Holdenby under the command of a mean subaltern officer, and reached Hinching-brook, near Huntingdon, the same evening.

This enterprise was solemnly disclaimed by General Fairfax, and is supposed to have originated with Cromwell: Fairfax even sent Colonel Whalley with his regiment to the king, with the proposal to escort his majesty back to Holdenby; but the king refused to return, insisting that having been brought from thence against his will, he would not be posted from place to place.

The parliament were amazed at this unexpected blow; yet even their mutual jealousy of the army failed to produce a cordial coalition between the two houses. On the 15th June, however, they agreed in a vote desiring General Fairfax to deliver his majesty to their commissioners, who were to convey him to Richmond, but their injunctions were disregarded, and in this, as in many subsequent instances, parliament soon lost the power to enforce their authority, and their votes became a mere dead letter.

It does not belong to our subject to trace the history of the unfortunate monarch after he was removed from Holdenby; we therefore conclude this notice with an abstract of the information collected by Mr. Baker, respecting the mansion itself, and the capabilities it afforded for the reception of the royal suite.

The court (says Sir Thomas Herbert) was accommodated with all things needful, both in reference to the king, and likewise to the commissioners, their chaplains, gentlemen, attendants, and others, and all within the king's house, without straitning: and all the tables were as well furnished as they used to be, when his majesty was in a peaceful and flourishing state.

About two years after, that beautiful and famous structure was, amongst other his Majesty's royal houses, pulled down by order of the two Houses of Parliament, to satisfie the soldiers' arrears.

This latter statement is, however, not quite correct, because the house was standing when the estate was alienated by the trustees for the sale of the crown lands; and the value of the house for building materials, and of the timber on the domain, being held out by them as alluring baits to the purchaser, tempted him, perhaps, to the work of destruction.

Avarice makes no sacrifice to taste; and the axe was laid to the root of the groves, and the palace levelled to the ground, by the Yorkshire speculator; reserving only a portion of the attached offices, probably for his own habitation.

From personal inspection, and traditionary information, Mr. Baker has retrieved the original outline of this interesting mansion. The principal part faced the east, and the two archways now standing were the side entrances to the principal court. The foundations of the central entrance were dug up close to the wall which bounds the adjoining field: the postern gate at the north end of this wall communicated with the stables and coach-houses, which ranged eastward, nearly on the site of the cottages on the south side of the green; eastward of these was a large gateway, removed within these few years, beyond which were the malt-house, and probably the dairy already referred to, and other buildings, the remnants of which are converted into a farm-house; the whole of the premises stretching considerably above a furlong in length. Part of the materials were removed to Northampton, where three houses which sprang from them, may still be recognised. One of these houses was called "Little Holmby." The devastating process seems to have been arrested by the restoration of royalty, when the purchase was compulsorily relinquished. Some of the surrounding trees and gateways were saved, but it was too late to restore the edifice, which, says Evelyn, "shewed like a Roman ruine, shaded by the trees about it, a stately, solemn, and pleasing view."

It now (says Mr. Baker) presents a still more striking and melancholy picture of departed grandeur, crowning the summit of a ridge of hill. Even the pyramid, and other fragments in Buck's view (1729) have now disappeared; the house inhabited by a farmer has been reduced from a double to a single roof; and the intervening space to the gateways is a shapeless mass of earth mounds and fortifications. In front to the south were the gardens; and down a rather precipitous slope the long parallel lines of terrace walks, divided into stages by broad platforms, are still visible. At the extremities of the grounds are dry fish-ponds, and artificial mounts; and the air of desolation which pervades the whole, is finely contrasted by the rich woods and cultivated scenery of Althorp park, on the opposite hill. The two lateral gateways are of uniform design, and dated 1583.

It is presumed that Charles II. gave Holdenby to his brother James duke of York, (afterwards James II.) who sold it to Lewis Duras, created Baron Duras of Holdenby. The property was afterwards acquired by purchase, by the Spencer family, with whom it still remains

EASY LESSONS ON REASONING.

Lesson XIII.

§ 1. Besides *Categorical*-arguments, which we have been treating of, Reasoning is often expressed in a *Hypothetical* form. And tho' such arguments may be reduced into a categorical form, this is not necessary, except for the purpose of pointing out the *sameness*, in all cases, of the Reasoning-process. For you may exhibit in a hypothetical form, a perfect "*Syllogism*" as above defined.

A Hypothetical (or as some writers call it, a "compound") Proposition, consists of "two or more Categorical-propositions, united by a Conjunction, in such a manner as to make them *one* proposition." And the different kinds of hypothetical-proposition are named after their respective Conjunctions; namely "Conditional" and "Disjunctive*." For instance, "if A is B, then X is Y" is a Conditional-proposition†; "either A is B, or X is Y" is Disjunctive.

And each of these is a real *Proposition; i.e., asserts* something; and consequently in either *true* or *false;* which (as was formerly explained) is peculiar to *Propositions:* and each is also *one* Proposition, tho' consisting of several parts [or "members"] each of which if taken separately would be itself a Proposition; but the Conjunction (which is called the Copula) makes the whole *one* Proposition.

§ 2. For instance, "The world is eternal," is a proposition: "records earlier than the Mosaic exist," is another proposition; and "*if* the world be eternal, records earlier than the Mosaic must exist," is a third proposition distinct from each of the other, and which may be true, tho' they be both false: since it does not assert the *truth* of either of them, but only the *connexion* between them. Again, should any one say "if the Northern-lights be shining, some great revolution of an Empire is going on" this would be, properly speaking, a false Proposition, even should it turn out that each of the "members," stated as a categorical-proposition, is true; supposing it admitted that they have no *connexion* with each other.

Observe however that no *false Conclusion* can be deduced from a false Conditional-proposition, when it so happens that both its "members" (stated as categorical-propositions) are true.

In the case of a Disjunctive-proposition on the other hand, it is implied that one at least, of *its* "members" (stated as a categorical-proposition) must be true, and that, if not, the whole Proposition must be false. As, "this man was either at Oxford or at Cambridge" would not be true, if he were *not* at Oxford, *and not* at Cambridge.

And it is usually meant to be understood that *only* one of the members can be true: for if this were not the meaning in such an example as the foregoing, it would have been more correct to say "this man was either at Oxford, or Cambridge, or *both*."

§ 3. A Hypothetical-*syllogism* is one in which the *reasoning itself turns on the hypothesis;* not, every syllogism that *has in it* a hypothetical premise: for the "hypothesis" may be a portion of one of the Terms, and the syllogism may be merely categorical.

For instance "Real miracles are evidence of a divine commission; if the works of Jesus were acknowledged miraculous by the unbelieving Jews, they must have been real miracles; therefore, the works of Jesus (if they were acknowledged &c.) are evidence of a divine commission;" is a categorical syllogism; the hypothesis being merely a portion of the Minor-term.

And so also with such an example as "every X is either Y or W; Z is X; therefore Z is either Y or W."

In a hypothetical-syllogism, properly so called,—that is, in which the reasoning is based on a hypothetical premise, that premise is called the *Major*, and the other —which is categorical,—is called the Minor-premise.

We will speak first of *Conditional*-syllogisms.

There are in a Conditional-proposition *two* members, [categorical-propositions] whereof one is asserted to *depend* on the other. That on which the other depends is called the "*Antecedent;*" that which depends on it, the "*Consequent;*" and the *connexion* between the two, (expressed by "if," or "supposing") is called the "*Consequence.*"

(Consequence) (Antecedent)
For instance "If——this man is a murderer——
(Consequent) (Consequent)
he deserves death." The English are well off——
(Consequence) (Antecedent)
——if——they know their own advantages."

The natural order is to place the "Antecedent" *first;* but this (as you will see from the example above) is not essential.

§ 4. The meaning then of a Conditional-proposition, is, that "the *Antecedent* being assumed to be *true*, the *Consequent* is to be granted as true also." And this may be considered in two points of view: 1st allowing that the Antecedent *is* true, the Consequent *must* be true; 2ndly supposing the Antecedent *were* true, the Consequent *would* be true.

Hence, there are two kinds of Conditional-syllogism; 1st if the Antecedent be (in the minor-premise) granted to be true, the Consequent may (in the Conclusion) be inferred: 2ndly if the Consequent be *not* true—that is, if its *Contradictory* be assumed in the minor-premise—the Antecedent cannot be true; that is, its Contradictory may, in the Conclusion, be inferred: since if the Antecedent *had been* true, the Consequent (which we have assumed to be false) *would have been* true also.

A Syllogism of the former kind, is called "*Constructive,*" of the latter kind, "*Destructive.*"

For instance, "if A is B, X is Y:" let this be the major-premise; then, if you add, "but A is B; therefore X is Y," this forms a Constructive-syllogism: if you say "X is not Y; therefore A is not B," this is a Destructive-syllogism. Thus "If this river has tides, the sea into which it flows must have tides;" then if I add "this river has tides," it follows in Conclusion, that "the sea into which it flows has tides;" which is a Constructive-syllogism. If I add "the sea into which it flows has not tides" it follows that "this river has not tides."

§ 5. And here observe by the way, that, in hypothetical-arguments, we are not concerned with the distinction between *affirmative and negative Conclusions.* For, of the two members of a Conditional-proposition, either, or both, may be affirmative, or may be negative; so that we may establish the truth ("constructively") of either an affirmative or a negative Consequent; or may ("destructively") establish the falsity—that is, infer the Contradictory—of either an affirmative or a negative Antecedent.

For instance "if no miracles had been displayed by the first preachers of the Gospel, they could not have obtained a hearing; but they did obtain a hearing; therefore some miracles must have been displayed by them," is a Destructive-conditional-Syllogism.

The Consequent, as has been said, depends on the Antecedent; so that if the Antecedent be true, the Consequent will be true also; but as the Antecedent does not depend on the Consequent, nothing is proved by *denying* the Antecedent, or again, by *assuming* the *truth* of the Consequent. Suppose it granted that "if A is B, X is Y" tho' it may indeed so happen that X is Y, *only* on *that* Condition,—that is, that if X is Y, A is B, —this is not implied by the original assertion: so that (merely assuming that original assertion), to add that "A is not B," or again, to say "X is Y" proves nothing.

* See Lesson X.

† Those writers who use the word *compound* proposition instead of *hypothetical*, employ "hypothetical" to signify "conditional."

For instance, "if this man has committed theft he deserves punishment" does not authorize me to proceed either to say "he has not committed theft; therefore he does not deserve punishment;" or again, "he deserves punishment; therefore he has committed theft." For it is, (in this case) evident that a man may deserve punishment for some other offence.

§ 6. And you may observe that the fallacy of *affirming the Consequent* and thence inferring the truth of the Antecedent, answers to the fallacy (in Categoricals,) of *undistributed-middle;* as may be seen from the above example. For to say "every one who has committed theft deserves punishment; and this man deserves punishment," would evidently be a case of undistributed-middle.

The Fallacy again, of denying the Antecedent and thence inferring the denial of the Consequent, would correspond (in Categoricals) either to an "Illicit-process of the Major-term," or to the Fallacy of "two negative-premises," or that of introducing palpably "more than three terms." For instance, suppose instead of saying "if this man has committed theft &c." you say, "Every one who has committed theft deserves punishment; this man has not committed theft &c." this would be an illicit-process of the Major. Or again, suppose, instead of saying "if this man has a fever, he is not fit to travel; but he has not a fever; therefore he is fit to travel," you say "No one who has a fever is fit to travel; this man has not a fever &c." this would be to employ "two negative premises." Again, "If this army is not brave it will not be victorious; it is brave; therefore it will be victorious," would, if expressed categorically, have palpably more than three terms.

§ 7. It is plain from what has been above said, that a Conditional-proposition may be illatively *converted*, by taking the *Contradictory of the Consequent for an Antecedent*, and (of course) the Contradictory of the Antecedent, for a Consequent. "If A is B, X is Y" implies that "if X is not Y, A is not B." "If all wages be regulated by the price of food, an English labourer will have higher wages than an American;" this manifestly implies that, "if an English labourer has not higher wages than an American, all wages are not regulated by the price of food."

This corresponds to the conversion of the categorical-proposition A, "by negation;" ["contraposition,"] every Conditional-proposition corresponding in fact to a Universal-affirmative-Categorical: the *Antecedent* answering to the *Subject*, and the *Consequent*, to the *Predicate*.

It is evident that if you thus convert the Major-premise [the hypothetical-premise] of any Conditional-syllogism, you change the Syllogism from "*Constructive*" to "*Destructive*," or vice versa, from Destructive to Constructive.

The Proposition "if A is B, X is Y" may be considered as amounting to this; "The case [or supposition] of A being B, is a case of X being Y." And then to say (as in the Minor-premise and the conclusion, of a constructive-conditional syllogism) "A is B; and therefore X is Y," is equivalent to saying "the present [or the existing] case is a case of A being B: therefore this is a case of X being Y."

Or again, "if the Stoics are right, pain is no evil; but pain is an evil; therefore the Stoics are not right," (which is a destructive-conditional syllogism) may be reduced to a Categorical, thus: "To say that pain is no evil - - is not - - true; to say that the Stoics are right - - is - - - to say that pain is no evil; therefore to say that the Stoics are right - - is not - - true."

This Syllogism is in the first Figure. The argument might be exhibited in the third Figure, thus: "that pain is no evil is not true; but that is maintained by the Stoics; therefore something maintained by the Stoics is not true."

In some such way (taking care always to preserve the *same sense*) any argument may be exhibited in various different *forms* of expression, (the choice of which is merely a matter of convenience) so as to point out and impress on the mind that the reasoning-process itself is always essentially one and the same, and may ultimately be referred to the "Dictum" formerly mentioned.

§ 8. In a disjunctive-proposition, as has been already observed, it is implied *that at least some one of the "members" must be true.* If therefore *all except one* be (in the minor-premise) denied, the truth of the remaining one may be inferred.

For instance, "either the Gospel was an invention of impostors, or it was a dream of fanatics, or a real revelation; it was neither of the two former; therefore it was a real revelation."

But if there be more than two members, and you deny (in the minor-premise) one or more of them, but not *all except one*, then you can only draw a *disjunctive* Conclusion: as, "this event occurred either in Spring, Summer, Autumn or Winter; it did not occur in Summer or in Winter; therefore it occurred either in Spring or in Autumn."

In a Disjunctive-proposition it is (as has been said above) usually understood that the members are *exclusive; i.e.* that *only one* of them can be true: and you may, on that supposition, infer from the *truth* of one of them (assumed in the Minor) the Contradictory of the other, or others. As "either A is B, or C is D, or X is Y; but A is B; therefore C is not D, nor is X Y."

§ 9. A Disjunctive-Syllogism may readily be reduced to a *Conditional*, by merely altering the form of the Major-premise; namely, by taking as an *Antecedent* the Contradictory of one or more of the members; everything else remaining as before. Thus, in the example lately given, you might say, "*If* this did not occur in Summer nor in Winter, it must have occurred either in Spring or in Autumn;" &c.

A Disjunctive-proposition, you are to observe, is, (as well as a Conditional) always *affirmative*. For, either kind of Hypothetical proposition always *affirms* the *connexion* of the members of it, [the categorical-propositions contained in it] whether these be affirmative or negative propositions.

And the *contradiction* of a Hypothetical-proposition must therefore consist in *denying* this *connexion;* which is done, not in a Hypothetical, but in a Categorical-proposition. When it is asserted that "if A is B, X is Y," you would contradict this by saying "it does not *follow that* if A is B, X must be Y;" or by some such expression. Or when it is asserted that "either A is B, or X is Y" you might contradict this by saying "*it is possible that* neither A is B, nor X, Y:" or you might contradict a Disjunctive-proposition by two or more Categorical-propositions; namely, by asserting separately the Contradictory of each member; as "either some Z is Y, or else some W is not X," might be contradicted by "no Z is Y, and every W is X."

It is the motive that more than anything else renders an action good or bad. However fair the look of an action may be, if the right motive is wanting the action is hollow; if the motive be a bad one, the action is rotten at the core. Who cares for an outward seeming or show of friendship or affection, unless the heart be also friendly and affectionate? Who does not prize a rough outside, when it covers an honest inside, more than the most fawning fondness from a heart that is cold and false? Thus it is right to insist on the principles for their own sake; because the principles give their value to the action, not the action to the principles. The principles are the gold on which the stamp is to be put: if the gold be not good, the stamp, though it may often deceive people, gives it no real worth; and he who graves the king's image on base metal, is punished for forgery.—REV. AUGUSTUS HARE.

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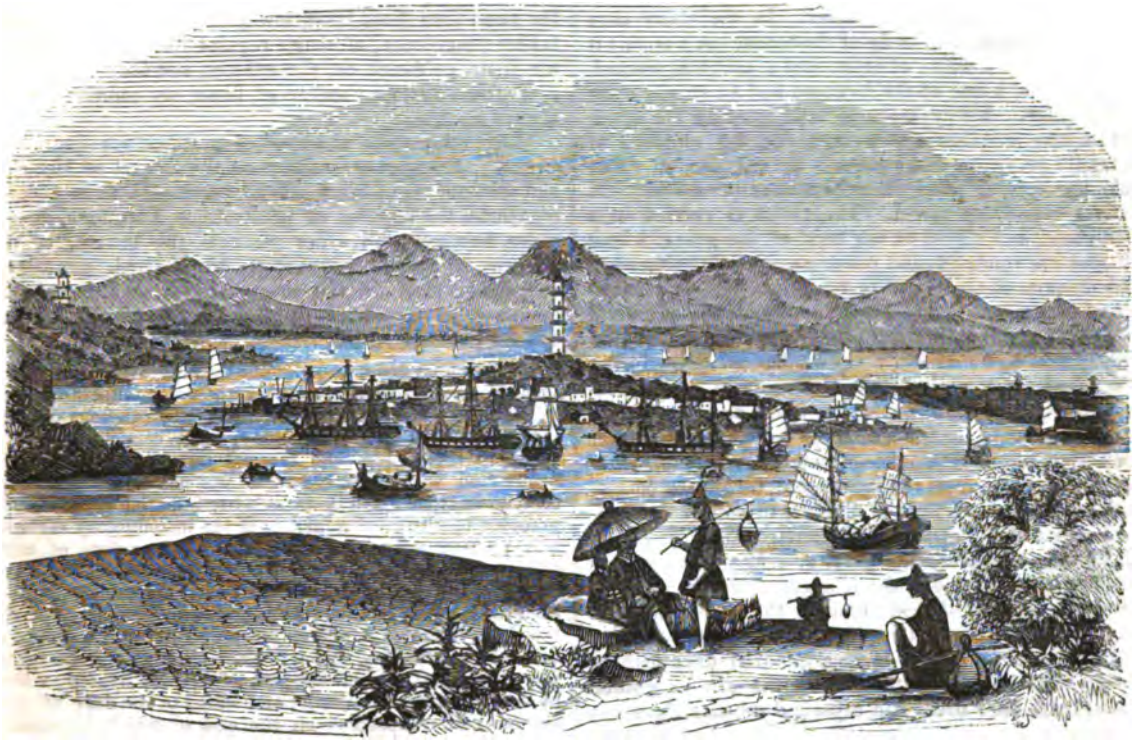
WHAMPOA.



WHAMPOA ISLAND AND THE CANTON RIVER.

About ten miles below the city of Canton, the island of Whampoa divides the river into two channels. This island affords safe anchorage-ground for foreign ships trading to Canton, and on arriving at Whampoa the bustle and variety of the Canton river become very striking. The river seems to be alive with boats, some fishing, some passing up and down or across in all directions. On the shores, as far as the eye can reach, green fields appear in every direction, intersected by small canals, and sheltered by elevated lands which form an agreeable back-ground to the picture. Small villages, each with a dense and bustling population, may be descried through the shady and rich foliage of the banana, the orange tree, and the bamboo. Mat sails are universally employed for Chinese junks of all sizes, and these give a peculiar feature to the scenery about Whampoa, and from thence up to Canton. An eye-witness describes these sails as being composed of a number of mats sewed together, with from six to eight bamboo battans placed at equal distances, and horizontally across the sail; the space between each constituting a reef, which is always taken in on the foot, by lowering the haulyards, and rolling up on the battans, from the extreme end of each of which are lines so placed as to meet at a centre to form the sheet, but yet each supporting its own battan. These junks and boats invariably *tack*, for the act of wearing would, from the jibbing of the sail, endanger their lightly secured masts.

On anchoring at Whampoa, two boats from the offices of the local authorities are placed alongside to prevent smuggling, and their permission is necessary to the landing or shipping of any goods. The exactions on foreign ships have hitherto been very oppressive, and have led to an extensive system of smuggling. In the lading and unlading of ships, a linguist is employed, who transacts all the necessary business connected with fees and duties at the government offices. Five or six of these men are licensed by government, and are considered responsible for all proceedings connected with the cargoes of European vessels.

Conspicuous on the island of Whampoa is its stately pagoda, which rises to an elevation of a hundred and twenty feet. Like most other edifices of the kind it is constructed of brick. The view from its summit is very fine, embracing the varied scenery of the adjacent hills and valleys, and the extensive and animated navigation of the Canton river. Pagodas are also seen erected at certain distances all up the river as far as Canton, and even beyond. Mr. Bennett remarks that in looking from the terrace of the East India Company's late factory, it was observed that these pagodas formed a line of watch-towers; and signals and lights could pass from them with rapidity from one to the other, forming excellent means of telegraphic communication. The pagodas here and elsewhere are, as it is well known, the religious buildings of the Chinese; indeed the name pagoda is a corruption of the Sanscrit word for "holy house." These temples generally consist of a porch or vestibule, an outer sanctuary for the priests, and an inner sanctuary, containing the principal idol. As the fruit of idolatry we may naturally expect to find superstitious observances among the Chinese, when death occurs in their families; and such the report of recent observers proves to be the case.

When the parent of a family dies, a messenger announces the event to relatives and friends, and if the deceased belonged to the wealthier class, a tablet is suspended at the door, inscribed with the name and age. Pieces of white paper are also pasted on each side of the door, white being used as mourning in China. The family, clothed in white, sit weeping around the corpse, which is covered with white cloth or silk. The eldest son puts two small copper coins into an earthen bowl, which he takes in his hands and carries, supported by his friends, to the moat that surrounds the city, or to the well at the gate of the village, where he deposits his money and takes some water. In the water thus purchased the face and body of the corpse are washed; it is then put into a coffin of state, and a tablet is erected, containing the name of the deceased and an eulogy upon his character. Every morning and evening for seven days incense matches are lighted, and the children of the family prostrate themselves. At the end of three weeks the funeral takes place. attended by friends and relatives who weep aloud. The tablet is carried in a sedan-chair, and placed at the head of the grave, where oblations are rendered, and prostrations again performed. After interment the tablet is brought back, and sacrifices of pigs roasted whole, three or four kinds of animal food, fruits, and pastry, are offered with accompanying prostrations, also morning and evening oblations during the space of seven weeks. Rooms, furniture, and domestics, artificially made of paper, are burnt and passed into the invisible state for the use of the deceased. In former ages slaves, attendants, and domestic animals were actually slaughtered, and the wardrobe, furniture, &c., of the deceased were consumed by fire, to supply the supposed wants of the disembodied spirit.

It appears that blue, dull grey, or ash, are also held as mourning colours among the Chinese. On the death of a member of the Royal Family the information is announced by edicts written in blue ink, all the government officers are required to go a hundred days without shaving their heads, and to remove the gilt or golden buttons from their dress and caps, and substitute glass or crystal ones.

In our view of Whampoa, numerous vessels with single sails are to be seen on the river. These are the *sampans*, or vessels usually employed in conveying tea from the foreign factories at Canton, to the ships stationed at Whampoa. When the wind is unfavourable, the sail is lowered, and the boat rowed by ten or twelve men, who impel her onwards at considerable speed by the aid of bamboo poles. These vessels are ill adapted for rough weather, but are managed by the sailors with much courage and dexterity. These men have been trained to the occupation from early childhood, and are by law prevented from living on shore until they have acquired a sum sufficient to purchase a small property, including house and garden.

Leaving the busy scene of commerce which Whampoa and the Canton river present, we shall conclude with a peep at the higher classes of Chinese society, where ceremony and etiquette are diligently studied. The visit of one mandarin to another is thus described by Mr. Scott:—

In front walked two men, with high felt caps, to which were appended two goose-quills, having very much the appearance of a large ink-bottle with two pens in it; they dragged chains after them; then came two more, with the same curious head-dresses, beating gongs; then a soldier, with a red silk chatty, which he carried as if about to charge; after him were two more soldiers, and then the mandarin's sedan made its appearance, carried by four men, and surrounded by soldiers and other attendants; the whole party were shouting, and making a great noise. When they had passed through the great gate, the train filed off to the right and left, and the mandarin walked out of his sedan, and went in, attended only by his pipe-bearer, and one or two more officers. All, with the exception of his immediate attendants, were very raggedly clothed, and the sedan-bearers were almost naked, notwithstanding the inclemency of the weather; indeed, the quantity and not the quality of the attendants seemed the order of the day.

In visiting each other, the Chinese are, as usual, ceremonious. The person calling sends in his card (a piece of red paper, with a few characters upon it) and if the master of the house be at home, and choose to see the visitor, he goes to the door and conducts him to the sitting room, where tea is immediately served up. On the visitor's departure, the master generally accompanies him a certain distance, according to his rank; if a superior, to the gate; if an equal or inferior, not so far; at the same time there being always a polite contest about taking precedence, although regular rules are laid down for their guidance on the subject, and they well know that after a certain number of bows, the superior must always go first.

Court etiquette is observed to a ridiculous degree in China. Volumes are written on the subject of the acts and movements of every official personage on important occasions, the number of prostrations, kneelings, reverences, bowings, and other gestures, the quarter of the heavens to which they are to be directed, &c. The usages observed on the coronation of an Empress are amusing, as translated from the laws of the Tartar dynasty, and given in Professor Kidd's work.

The imperial great empress, the evening before she is enthroned, commands the great officers of state to announce, with all solemnity, in the ancestral temple and contiguous palaces, the precise time of the ceremony. Her carriages of state being in attendance, and musical instruments suspended before and within the doors of the palace, her majesty, arrayed in royal apparel, ascends her imperial chariot, and, preceded by the great ministers of the introductory ceremonies, proceeds with bands of music to the palace of compassion and tranquillity where she reposes for a short time. A temporary throne having been erected for the emperor in the centre of the gateway of this palace, the officers of the board of ceremonies reverentially conduct his majesty to his own apartments, through the glorious imperial gateway, to the left side of the gate of eternal felicity, where he descends from his chariot and walks to the door of tenderness and compassion, on the east of which he stands; meanwhile the officers go to the inner palace and request the empress to ascend her throne. Music is playing during the passage of her majesty from the hall to the presence chamber, which ceases on her ascending the throne. Ministers of state reverentially conduct his majesty to the centre of the prepared throne, where he stands. A special officer arranges the great ministers of state, the body-guard, and court-equipages, in due order when the herald proclaims aloud the words—kneel—worship—rise. Music instantly strikes up on the vermilion steps, his majesty, and all the great ministers of state, kneel thrice and bow nine times; when this ceremony is concluded his majesty is reverentially conducted to his own prepared throne.

After the empress has been attended with music to her palace, his majesty ascends his chariot and returns to his palace. The lady mandarins, conductors of affairs, having erected a throne in front of her majesty's palace of tenderness and repose, and arranged in order the honourable ladies, and ladies-in-waiting, on its right and left, the officers of this board go to the harem and respectfully desire the imperial and noble ladies to proceed to her majesty's palace in their court robes, to perform the ceremony. Eight ladies duly vested with authority—"commissioned married ladies"—reverentially lead the *cortège* through the gate of felicity to the left gate of the palace of excellent melody, where they alight from their chariots, and walk to join the ladies already waiting to receive them. [The ceremonial of ascending the throne is then gone through as before.] Music strikes up on the vermilion steps; the two great ministers of state and the commissioned married ladies respectfully solicit the empress, at the head of the ladies of her apartments, to perform the six reverences, the three kneelings, and the three worshippings. When these ceremonies are ended, they enter the palace of tenderness and tranquillity, where an imperial banquet is conferred, for which the royal guests return thanks by making two reverences and one bow.

VOLTAIC ELECTRICITY.

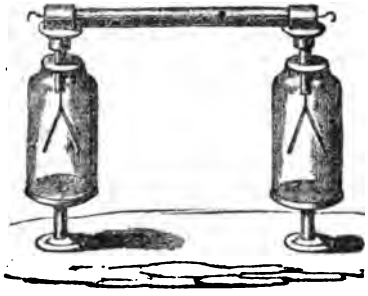
III.

The Voltaic pile described in our former article* led to some interesting modifications, such as De Luc's electric column, the dry pile of Zamboni, &c. The former consists of a number of alternations of two metals, with paper interposed, and no apparent liquid element. Thin paper covered with silver leaf punched out into circular discs of about half an inch diameter, is made to alternate with similar discs of thin zinc foil, so arranged that the same order of succession, namely, zinc, silver, paper, zinc, silver, paper, &c., may be maintained throughout. These alternations, amounting to many thousand in number, are most conveniently preserved in a glass tube, perfectly clean and dry within, and surmounted at each end with a brass cap, perforated by a screw, by which the plates may be pressed together, and which also serve as the poles of the arrangement; the screw at one end being in contact with the zinc plate, and that at the other with the silvered paper. Zamboni in his arrangement used discs of paper, gilt or silvered on one side, and covered on the other with a mixture of black oxide of manganese and honey.

Although this arrangement is called the *dry* pile, the presence of moisture is indispensable to its action. The paper contains within its pores a small portion of moisture, which gradually acts upon the zinc: electricity is thus evolved, which from the great obstacle presented to its recombination through the discs internally, and by the atmospheric air outside, acquires so high a degree of intensity as to act upon the electrometer. If this pile be held by one of its brass caps, and the other cap be made to touch the cap of the gold leaf electrometer, the leaves will diverge, positively from one end, and negatively from the other end of the arrangement; that end of the column to which the zinc surfaces incline being called the *positive*, and that to which the silver discs incline, the *negative* extremity or pole.

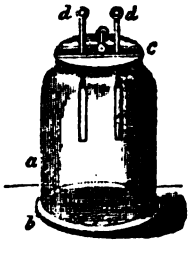
If the column be placed with each extremity in connection with an electrometer, as shewn in the cut, one

Fig. 1.



will display positive, and the other negative electricity; and on making a direct communication between the two electrometers by a metallic wire, the divergence ceases, but is again produced soon after such communication is broken.

Fig. 2.



A convenient form of electrometer for experiments with the dry pile is shewn in fig. 2, in which *a* is a glass cylinder mounted upon a wooden base *b*. It is covered with a piece of dry varnished wood *c*, in which the glass tubes *d d* slide backwards and forwards, and through which pass wires having gold leaves suspended to their lower extremities. The distance of the gold leaves may be accurately adjusted by a rack and pinion.

Having adjusted the distance between the gold leaves, if the zinc end of the column be brought in contact with each of the wires to which they are attached, the leaves repel each other; the silver end of the pile produces a similar effect; but if one of the gold leaves be connected with the zinc end, and the other with the silver end of the column, they attract each other; and having thus, by contact, annihilated their opposite electrical states, they separate for a moment, and then again attract and separate as before, a kind of perpetual motion being kept up between the leaves in consequence of the successive electrical charges communicated to them by the column. Upon this principle a variety of scientific toys, under the name of *perpetual motions*, have been constructed: thus a small clapper may be kept constantly vibrating between two bells; or a light pendulum between two conducting surfaces; and these motions continue as long as the column retains its electric activity, which is often for months or years.

If one end of the dry column be connected with the interior, and the other with the exterior of a Leyden jar, the jar will receive a charge; its knob will affect a delicate electrometer, and on discharging it by a wire a very small spark will be observed.

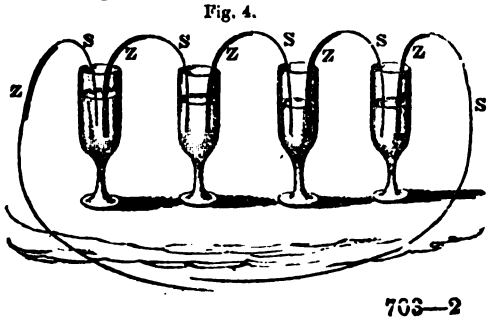
It will be observed, in regard to this instrument, that its electrical excitement is chiefly that of intensity, and that after its discharge a sensible time intervenes before its power is renewed; its electricity is *apparently* independent of chemical action, and has therefore been considered referable only to the contact of the metals. In favour of this opinion it has been urged that whenever any chemical action is apparent in it, its electrical effects cease, as when the zinc or silver become tarnished, or the intervening papers more than ordinarily damp; but it is also rendered inactive by drying the papers so as to deprive them of their hygrometric moisture, and it is said that in the course of years the zinc becomes evidently corroded. It was always presumed that no chemico-electrical effects could be obtained from these piles, but Mr. Gassiot has succeeded in decomposing iodide of potassium by a column of 10,000 series upon Zamboni's construction.—Brande's *Manual of Chemistry*.

The original Voltaic pile must be regarded as one of the most valuable instruments ever invented by man. But its first construction was attended with many inconveniences, especially where the plates were very numerous; the weight of the upper part of the pile pressing the liquid out of the lower part rendered it comparatively inactive. To remedy this, each pair of plates was soldered together, and cemented in regular order in a trough of baked mahogany, as in figure 3, and the intervening cells were filled with the exciting solution. A wire in contact with the last copper plate, and another wire in contact with the last zinc plate, enabled the operator to close the circuit.

Fig. 3.

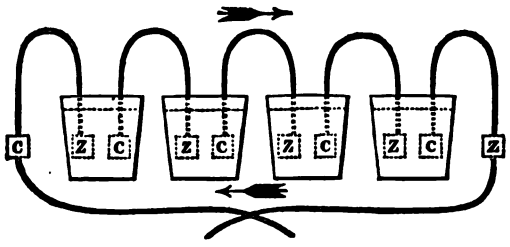
Volta also contrived a modification of the pile, which he called the *couronne des tasses*, or crown of cups. This consists of a number of glasses or cups arranged in a circle or as in the figures, 4, 5, containing dilute acid, and each

Fig. 4.



* See *Saturday Magazine*, Vol. XXI., p. 92.

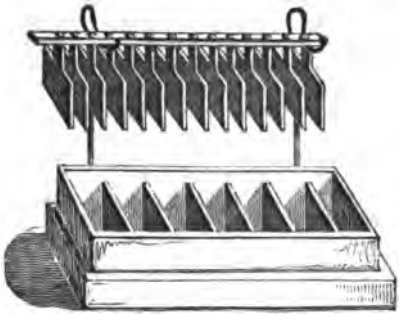
Fig. 5.



glass a wire of silver and one of zinc, so connected that the zinc of the first glass may be in communication with the silver of the second, and the zinc of the second glass with the silver of the third, and so on. In fig. 6, copper is substituted for silver. No action takes place till the extreme wires s and z and c and z are in contact, and then a current of electricity passes in the direction of the arrows, and each silver and copper-wire is seen to evolve hydrogen.

The next improvement was to solder the plates of copper and zinc together in pairs by one point only, and to fix them upon a rod of wood, by which means they could be lifted together in convenient numbers, into or out of a trough of earthenware divided into cells for their reception as in figure 6. The fluid could thus be

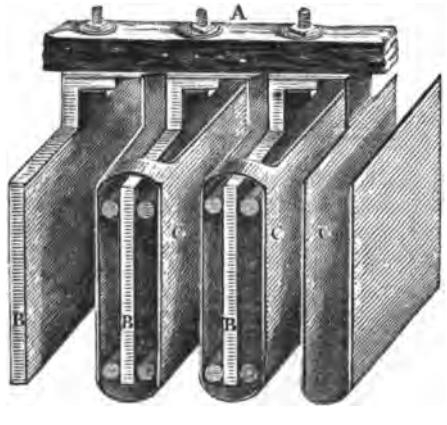
Fig. 6.



allowed to remain in the trough, while the action could at any time be suspended by raising the plates from the cells, and placing them upon the rods fixed for their support.

A considerable improvement was made by Dr. Wollaston, who extended the copper plate so as to oppose it to both surfaces of the zinc, as shown in figure 7. A

Fig. 7.

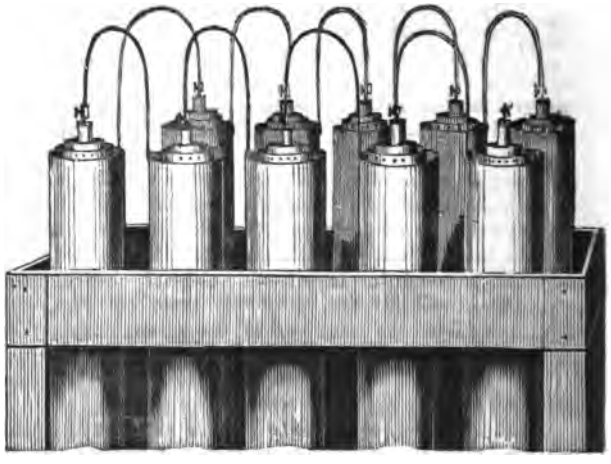


represents the bar of wood to which the plates are screwed, B B B, the zinc plates connected as before with the copper plates C C, which are doubled over the zinc plates. Contact of the surfaces is prevented by pieces of wood or cork placed between them. A copper band passes from the copper of one pair to the zinc of the next pair, so that one of the screws at the top fastens the copper of one pair with the zinc of the next pair, and this order is observed throughout.

The compound circles can be increased to any extent by connecting troughs together in proper order, that is, in the direction of the current. The Royal Institution had a battery composed of two thousand pairs of plates, each plate having thirty-two square inches of surface. With this battery Sir Humphry Davy discovered the compound nature of the fixed alkalies. But the progress of the science proved such extensive arrangements to be unnecessary, for the number of plates being increased beyond a moderate extent did not give a proportionate increase of power.

The compound Voltaic arrangements which are now most advantageously employed are Mr. Daniell's or Mr. Groves. The former consists of a number of the constant cells already described, connected together by wires attached to the copper cylinders, and fastened to the zinc by clamps and screws, as shewn in figure 8.

Fig. 8.



In Mr. Grove s battery, plates of zinc and platina are separated by diaphragms of porous earthenware, the zinc being acted upon by dilute sulphuric acid, mixed with a little nitric acid, and the platina being in contact with tolerably strong nitric acid. The hydrogen evolved by the zinc is completely absorbed by the nitric acid, on which it acts, forming nitrous acid which remains dissolved; and the metals, being those most opposite in their electrical relations, give a most powerful current.

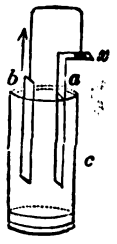
Many of the forms of Voltaic apparatus which we have noticed belong to the history of the science: they are now superseded by the improved arrangements which have resulted from clearer perceptions of the phenomena of Voltaic action, and it is curious to remark that the progress of this science may be accurately traced in the successive mutations to which the Voltaic battery has been subject.

It has been already stated that the development of electricity in metals was attributed by Volta to a peculiar electro-motive force, under which metals, by simple contact, tend to assume opposite electric states. This theory is now discarded, and it is agreed that Voltaic electricity is due entirely to chemical action; that metallic contact is not necessary for its production; and that when electricity is developed by such means, it is owing to some chemical action undergone by the most readily oxydizable metal. The important researches principally of Dr. Faraday, have established the general law that no chemical action occurs unaccompanied by disturbance of electric equilibrium and consequent development of free electricity.

That Voltaic electricity is produced independently of contact, and by chemical action only, may be proved by

the simple and beautiful experiment of Dr. Faraday. A clean plate of zinc *a* was bent to a right angle, and a plate of platinum *b* was fastened to a platinum wire, which was bent as in the figure at *x*; a piece of filtering paper, moistened in a solution of iodide of potassium, was placed on the zinc, and was pressed against the end of the platinum wire. When the plates thus arranged were dipped into the vessel *c*, charged with dilute sulphuric acid, mixed with a little nitric, a current, passing in the direction of the arrow, was established, sufficient to decompose the salt, iodine being thrown down against the platinum wire. The surface of the paper next the zinc was found to be alkaline from free potash.

Fig. 9.



The electricity of the Voltaic pile is therefore derived solely from chemical action. In the lowest pair of plates the zinc is acted on by the fluid, electric equilibrium is destroyed, the negative fluid escapes by the lowest copper plate to the earth, and the positive is retained by the zinc. In the second pair of plates, the negative electricity expelled by the chemical action on the second zinc plate, passes to the first zinc and restores its equilibrium by combining with the positive fluid adhering to it; and these series of actions are repeated to the top of the pile. So that we have thus the remarkable fact which is now established, that however much we increase the number of elements of a galvanic circle, the quantity of electricity passing in the current is equal only to that evolved by a single pair of plates; its tension only being increased with the number of alternations. Thus it appears that the chemical action, and the disturbance of electric equilibrium in the intermediate plates of the pile or battery, are exerted only in urging on the currents to the terminal plates, thus increasing as it were the momentum and consequent tension of the electricity evolved.

CONSOLATION IN SORROW.

WHILE o'er the cold remains of one
Beloved I hung, in its distress
My mind was from distraction won;
A look, replete with tenderness,
A smile had settled on the clay;
'Twas faint, but legible to love!
To me, said more than words could say,—
It shone through death, and from above!—C. H.

DR. BABINGTON related that, after having been many years from Ireland, an irresistible desire again to see his native soil, made him determine, during a certain vacation, to revisit it, and off he set alone on his expedition. From the route which he had taken, in order to reach his native village, it was necessary for him to cross a river by a ferry. Years before he had passed at this spot a thousand times, and as he sat in the boat, vivid recollections of his youth recurred, filling his mind with mingled sentiments of pleasure and pain. After some minutes' silence, he inquired of the ferryman if he had known the Rev. Mr. Babington, the former rector of the place. "Did I know him, is it you ask—is it Mr. Babington you ask me if I knew? Faith, and I did, for the kindest of men he was to us all." "He was my father," said Dr. Babington. "Was he, by the powers!" instantly exclaimed the fellow; and wrought up at once to a wonderful pitch of enthusiasm, he continued, "Then I'll take you nearer to the falls than ever man showed his nose before." At once, in accordance with his complimentary intention, he set himself vigorously to work, and the boat rapidly neared the dangerous torrent. The consternation of the Doctor, as may readily be expected, was much greater than his gratitude for this act of kindness, and he exclaimed, "I think, my dear man, you cannot show a greater attachment to my father's son, than by just taking me in the very opposite direction." After much demurring, the course of the boat was changed, and the Doctor was landed on the opposite shore.—*Life of Sir Astley Cooper.*

EASY LESSONS ON REASONING.

LESSON XIV.

§ 1. IT will often happen that you will have occasion to employ that complex kind of Conditional-syllogism (consisting of two or more such syllogisms *combined*) which is commonly called a "*Dilemma.*"

When you have before you as admitted truths two (or more) Conditional-propositions, with different Antecedents, but each with the same Consequent, and these Antecedents are such that you cannot be sure of the truth of any *one* of them, separately, but are sure that *one* or *other* must be true, you will then, naturally be led to state *both* of the Conditional-propositions, first; and next, to assert *disjunctively* the Antecedents; and thus to infer the common Consequent. As "if every A is B, X is Y; and if some A is not B, X is Y; but either every A is B, or some A is not B; therefore X is Y."

This kind of argument was urged by the opponents of Don Carlos, the pretender to the Spanish Throne; which he claimed as heir-male, against his niece the queen, by virtue of the Salic-law excluding females; which was established (contrary to the ancient Spanish usage) by a former king of Spain, and was repealed by King Ferdinand. They say "if a king of Spain has a right to alter the law of succession, Carlos has no claim; and if no king of Spain has that right, Carlos has no claim; but a king of Spain either has or has not, such right; therefore (on either supposition) Carlos has no claim."

§ 2. When several Conditional-propositions have different Consequents as well as different Antecedents, then we can only *disjunctively* infer those Consequents: that is we can only infer that (supposing some one or other of the Antecedents true) *one or other* of the Consequents must be true. As, "if A is B, X is Y; and if C is D, P is Q; but either A is B, or C is D; therefore either X is Y, or P is Q." Thus, "if the obedience due from Subjects to Rulers extends to religious worship, the ancient Christians are to be censured for refusing to worship the heathen idols; if the obedience, &c., does not so extend, no man ought to suffer civil penalties on account of his religion; but the obedience, &c., either does so extend, or it does not; therefore either the ancient Christians are to be censured, &c., or else no man ought to suffer civil penalties on account of his religion."

So also, "if Man is capable of rising, unassisted, from a savage to a civilized state, some instance may be produced of a race of Savages having thus civilized themselves; and if Man is not capable of this, then, the first rudiments of civilization must have originally come from a super-human instructor; but either Man is thus capable, or not; therefore either some such instance can be produced, or the first rudiments, &c."

§ 3. And when there are several Antecedents each with a different Consequent, then, we may have a Destructive-dilemma: that is, we may, in the Minor-premise *disjunctively deny* the Consequents, and in the Conclusion disjunctively deny the Antecedents. Or again, you may have a Dilemma partly Constructive and partly Destructive; that is, in the Minor-premise (which in a Dilemma is always a disjunctive-proposition) the members—suppose for instance there are two,—may be, one of them, the assertion of the Antecedent of one of the Conditional-propositions, and the other, the contradictory of the Consequent of the other Conditional.

Suppose we say, "if X is not Y, A is not B; and if P is not Q, C is not D; but either A is B, or C is D; therefore either X is Y, or P is Q;" this would be a Destructive-Dilemma; and you may see that it corresponds exactly with the example given a little above, only that we have, here, *converted* both of the Conditional-propositions. (See § 7 of the preceding Lesson.) If we had converted *one* only, and not, the other, of the Conditionals, (as "if A is B, X is Y; and if P is not Q, C

is not D;" &c.,) then the Dilemma would have been *partly* Constructive and partly *Destructive*. For, as has been formerly explained, the difference between a Constructive and a Destructive Syllogism consists merely in the form of expression, and it is very easy to reduce either form into the other.

It may be worth while to observe that it is very common to state the *Minor*-premise of a Dilemma first; in order to shew the more clearly that the several Categorical-propositions which are, each, doubtful, when taken separately, may be combined into a Disjunctive-proposition that admits of no doubt. And this Minor-premise being disjunctive, some have hence been led to suppose that a Dilemma is a kind of *disjunctive* argument; tho' it is really, as we have shown, a *Conditional*.

The name of "*Di*lemma," again, has led some to suppose that it must consist of *two* members only: tho' it is evident that there may be any number.

§ 4. When there is a long Series of arguments, the Conclusion of each being made one of the Premises of the next, till you arrive at your ultimate Conclusion, it is of course a tedious process to exhibit the whole in the form of a series of Syllogisms. This process may in many cases be considerably abridged, without departing from the strict syllogistic-form: [that is, such a form as shews the conclusiveness of the reasoning, from the *expression alone*, independently of the meaning of the Terms, and equally well when arbitrary Symbols are used to stand for the Terms.]

What is called a "Sorites" (from a Greek word signifying a *heap*, or *pile*) is such an abridged form of stating a train of arguments. When you state a series of propositions in which the Predicate of the first is made the Subject (distributed) of the next, and the Predicate of that, again, in like manner the Subject of the next, and so on, to any length, you may then predicate in the Conclusion the *Predicate* of the *last* Premise of the Subject of the first.

Thus "A (either "some" or "every") is B; every B is C; every C is D; every D is E; &c. therefore A is E;" or "no D is E; therefore A is not E." Thus also, "this man is selfish; whoever is selfish is neglectful of the good of others; whoever is neglectful of the good of others is destitute of friends; and whoever is destitute of friends is wretched: therefore this man is wretched."

§ 5. To such a form of argumentation the "Dictum" formerly treated of may be applied, with one small addition, which is self evident. "Whatever is affirmed or denied of a whole Class, may be affirmed or denied of whatever is comprehended in [*any Class that is wholly comprehended in*] that Class." This sentence, omitting the portion enclosed in brackets, you will recognize as the "Dictum" originally laid down: and the words in brackets supply that extension of it which makes it applicable to a "Sorites," of whatever length; since it is manifest that that clause might be enlarged as far as you will, into "a Class that is wholly comprehended in a Class, which again is wholly comprehended in another Class &c."

You will perceive on looking at the above examples that, tho' the first of the propositions of a Sorites may be either Universal or Particular, all the succeeding Premises must be *Universal;* since, else, the "Dictum," as stated just above, would not apply.

You will perceive also that, tho' the last of the Premises may be either Negative or Affirmative, all the preceding ones must be *Affirmative*, in order that the Dictum may be applicable. Thus, in the example first given, it is allowable to say "no D is E; therefore A is not E:" but then it is necessary that "C" should be *comprehended* in "D" (not, *excluded* from it) and "B" likewise in "C," and "A," in "B," since otherwise the "Dictum" would not be applicable.

§ 6. It will be seen, on examining the examples, that there are, in a Sorites, as many Middle-terms as there are *intermediate* propositions between the first and the last; and that it may be stated in just so many separate syllogisms in the 1st Figure; which is the simplest and most common form of a syllogism.

The first of these syllogisms will have for its *Major*-premise the *second* of the propositions in the series, and for its *Minor*-premise, the first of them; and the Conclusion of this first syllogism will be a proposition which is (in the Sorites) not expressed but understood; and which will be the Minor-premise of the next Syllogism. And of this next syllogism the Major-premise will be the *third* that is expressed in the Sorites; and so on.

For instance, (1st,) "every B is C; A is B; [therefore A is C:"] and (2ly) "every C is D;" ["A is C; therefore A is D,"] &c.

The portions enclosed in brackets are those which in the Sorites are *understood*.

The *only Minor*-premise expressed in the Sorites is the first proposition of the Series; all the succeeding minor-premises being understood.

And hence it is that (as has been above said) this first is the only one of all the Premises that may allowably be a *Particular:* because, in the first Figure, tho' the Minor may be either Universal or Particular, the *Major* (as you see from what was formerly said, of the "Dictum,") must always be *Universal;* and *all* the premises in the Sorites except the first, are *Major*-premises.*

In this way may also be explained what was above said, that the *last* of the premises of a Sorites is the only one that can allowably be a *Negative:* since if any of the others were negative, the result would be that one of the Syllogisms of the Series would have a negative minor-premise; which, in the first Figure, (as you will see by again referring to the "Dictum") is inadmissible.

§ 7. A Series of *Conditional*-syllogisms (which correspond, as has been shown, to Categorical-syllogisms in the first Figure) may in like manner be abridged into a Sorites; by making the Consequent of the first proposition the Antecedent of the next; and so on: and then drawing the Conclusion by either asserting the *first* Antecedent, and thence (constructively) inferring the last Consequent, or else, denying the *last* of the Consequents, and (destructively) inferring the Contradictory of the first Antecedent. As, "If A is B, C is D; and if C is D, E is F; and if E is F, G is H," &c.: and then, if the Sorites be "Constructive," you add "but A is B; therefore G is H;" or, if "destructive," "but G is not H; therefore A is not B."

The foregoing are all the forms in which Reasoning can be exhibited *Syllogistically;* i. e. so that its validity shall be manifest from the *mere form of expression*.

For, an *Enthymeme* (See Lesson II. § 3) is manifestly not syllogistic; since it is possible to admit the truth of the one premise that is expressed, and yet to deny the Conclusion.

An Enthymeme may indeed be such (since it contains all the three Terms requisite for a Syllogism,) that we can readily perceive what the premise is that *ought* to be understood, and which *if* supplied, would make the Syllogism complete: as "Z is X; therefore Z is Y;" [or "the Elk has horns on the head; therefore it is a ruminant] this *would* be syllogistic, *if* you were to prefix "Every X is Y:" but whether this be the Premise *actually meant* to be understood, we can only judge from the sense of the words that are expressed, and from what we believe respecting the subject-matter in hand, and the design of the Speaker.

In a Syllogistic form on the other hand,—whether Categorical, or Hypothetical, and whether at full length, or abridged into a Sorites—that which is *actually expressed* in the Premises is such that no one *can possibly suppose these true* (whatever be the *meaning of the Terms*, or whether we *understand* them or not) *without admitting the truth of the Conclusion* thence drawn.

§ 8. As for any arguments that are *not* expressed in a regular form, of course no precise rules can be laid down for reducing them into such a form; since any arguments to which such rules do apply, must evidently be, on that very ground, pronounced to be *already* syllogistic. Some general remarks however (drawn chiefly from what has been taught in the foregoing Lessons) may be practically serviceable in the operation of reducing arguments into regular form.

i. It has been remarked (in Lesson III. § 7) that men are very impatient of tedious prolixity in Reasoning; and that the utmost *brevity*,—the most *compressed* statement of argumentation,—that is compatible with clearness, is always aimed at, and is indeed *conducive* to clearness. And hence, (as was pointed out) a single sentence,—or even word—will often be a sufficient *hint* of an entire syllogism.

And it may be added, that such a sentence will sometimes be in the form, not of a *Proposition*, but of an *Exclamation*,—a *Question*,—or a *Command*; and yet will be such as readily to suggest to the mind a Proposition.

For instance, in some of the examples lately given, one might say (in place of one of the Propositions) "Chuse which you will of these two suppositions;" or "Who can doubt that so and so follows?"

The message to Pilate from his wife* furnishes an instance of a single word ("*just*") suggesting a Major-premise, while the Conclusion is stated in the form of an *exhortation:* "have thou nothing to do with that *just* man." And the succeeding sentence must have been designed to convey a hint of Arguments for the proof of each of the Premises on which that Conclusion rested.

§ 9. ii. Remember that (as was formerly shewn) we may change any proposition from Affirmative to Negative, or vice versa, without altering the sense: it being the same thing, for instance, to *affirm* of any one the term "not-happy," or to deny "happy." So that an argument may be valid which might appear at the first glance to have "negative premises."

But if the above experiment be tried in an argument that is *really* faulty on that ground, the only effect will be, to change one fallacy into another: as "A covetous man is not happy; this man is not covetous; therefore he is happy:" here, if you take "happy" as the predicate of the Major, you have negative-premises: if you take "not-happy" [or "unhappy"] as the term, you will have *four terms*.

On the other hand "no one is happy who is not content; no covetous man is content; therefore no covetous man is happy," is a valid syllogism.

That the Conversion-by-negation [contra-position] of a Universal-affirmative, is *illative*, has been formerly explained. And it is very common, and often conducive to clearness, to state such a proposition (A) in the form of this its converse (E); as, for instance, instead of "every motive that could have induced this man to act so and so, must have been purely benevolent," to say "no motive but pure benevolence could have induced him to act so."

iii. Remember that one single sentence (as was formerly explained, Lesson IX. § 7) may imply several distinct propositions, according to the portions of it which you understand as the Subject, and as the Predicate. For instance, "It is the duty of the Judge to decide for him who is in the right; this plaintiff is in the right; therefore it is the Judge's duty to decide for him," might be understood as having *five terms:* but according to the *drift* of the first premise (considered as a part of this argument) what you are speaking of is, not, "the duty of the Judge," but "the person who is in the right;" of whom you assert that "he is fairly entitled to the Judge's decision on his side." And if thus stated, the argument will be seen to be valid.

* Mat. 27, 19.

And here it may be remarked that to state distinctly as Subject and Predicate, that which is *really spoken of*, and that which *is said of* it, will be often the best and most effectual exposure of a Fallacy; which will always be the more likely to escape detection, the more *oblique* and *involved* is the expression.

Notice to Correspondent signed BARBARA, *&c.*

THE suggestion respecting "categorical sentences" shall be attended to.

The subject alluded to in the latter part of the communication could not be fully discussed in a short elementary work. It is in fact no less than the great question between the "*Realists*" and the "*Nominalists*," which at one time was fiercely contested throughout Europe. There are several well-known Works in which the inquirer will find it fully discussed.

NATURAL HISTORY OF CHALK.

I.

THE use of chalk, as an admixture to the clay lands of Essex, has already been noticed in the *Saturday Magazine*, Vol. XVI., page 54; but in the present paper we propose to enter more at length into the history of this familiar substance.

Chalk, when pure, is very nearly white, is opaque, soft to the touch, and light in weight. In some cases, however, it is found sufficiently hard so as to serve as a building material. The beauty of the landscape of which chalk forms the groundwork has frequently excited admiration.

For my own part (says the Rev. Gilbert White) I think there is something peculiarly sweet and amusing in the shapely-figured aspect of chalk hills, in preference to those of stone, which are rugged, broken, and shapeless. Though I have now travelled the Sussex Downs upwards of thirty years, yet I still investigate that chain of majestic mountains with fresh admiration, year by year; and I think I see new beauties every time I traverse it. This range, which runs from Chichester eastward, as far as East Bourn, is about sixty miles in length, and is called the South Downs, properly speaking, only round Lewes. As you pass along, you command a noble view of the wold, or weald, on one hand, and the broad downs and sea on the other. Mr. Ray (the eminent naturalist) used to visit a family just at the foot of these hills, and was so ravished with the prospect from Plympton Plain, near Lewes, that he mentions those capes in his *Wisdom of God in the Works of the Creation* with the utmost satisfaction, and thinks them equal to anything that he had seen in the finest parts of Europe.

Mr. Trimmer, also, in his *Practical Geology and Mineralogy*, observes, that—

Chalk forms an important feature in the geology and scenery of England, from its great extent, from the whiteness of its sea-cliffs, and from the smooth and flowing outlines of its hills, covered with short and verdant turf, destitute in a great measure of wood, and marked by winding and inosculating valleys, which appear to have once constituted a system of drainage, even when they are watered by no stream.

The white chalk is found, with very slight variations of mineral aspect, but subject to interruptions of continuity, over an area above 1100 miles long, extending from the north of Ireland, through England, France, Belgium, Germany, Poland, and Southern Russia, to the Crimea, with a breadth of more than 800 miles, or from the south of Sweden to Bordeaux.

Scotland and Wales are entirely destitute of chalk. A range of these hills, however, extends on the north of the River Humber, from Flamborough Head nearly fifteen miles inland; these are named the Wolds of Yorkshire; the Wolds of Lincolnshire constitute a similar range of hills on the opposite side of the Humber, and have an average breadth of rather more than six miles.

South of the Wash, that great triangular area of chalk

commences, which extends over the eastern and southern counties, bounded on the east and south by the sea, and on the west by a line drawn from Hunstanton Cliffs, in Norfolk, to Abbotsbury, on the coast of Dorsetshire.

Over this area the chalk does not constantly appear upon the surface; being often covered by other strata.

The greatest height which chalk attains in this country is at Inkpen Beacon, in Wiltshire, 1011 feet above the sea; and there are several hills, both in Yorkshire and the southern counties, which attain an elevation of full 800 feet. In the Alps and Pyrenees cretaceous (chalky) rocks have been uplifted to the height of 8000 feet above the sea. In Ireland chalk, harder and more compact than that of England, occupies an area of about 800 square miles in the county of Antrim, covered by basalts, but displayed in the sea-cliffs from the entrance of the Foyle to the neighbourhood of Belfast. The white chalk, continued across the English Channel, appears on the coast of France between Calais and the mouth of the Seine, in cliffs corresponding to those of Dover and Beachy Head, and extends as far southward as the banks of the Loire at Tours.

Further south another cretaceous district appears in France at the mouth of the Garonne, near Rochelle. As an instance of the mixing up, at some early period of the world, of the different strata which form the earth's crust, it may be stated that fragments of the hard kind of chalk peculiar to the county of Antrim, in Ireland, have been found in the south-west extremity of Caernarvonshire.

Chalk is an extensive repository of flint, which occurs in it, either in rounded masses scattered throughout the substance of certain portions of the rock, or, and more frequently, in layers which separate horizontal beds of chalk. These layers consist either of nodules of flint that are rich in organic remains, or simply of a flat pavement of flint from half an inch to two or three inches in thickness, broken up by the weight of the superincumbent chalk. The intermediate beds of chalk are frequently six feet, and more, in thickness; but some less than as many inches. These alternate layers of chalk and flint are to be principally seen towards the upper face of a cliff; at the lower part is a deeper bed of harder chalk comparatively destitute of flints. In Yorkshire and Lincolnshire, and at Hunstanton, in Norfolk, a bed of red chalk, from six to twelve feet thick, forms the base of this lower, harder, and flintless chalk. The whole thickness of the chalk formation varies from 600 to 1000 feet.

Excepting the lines of flint there are no other appearances of stratification in chalk, although from the nature of the petrified remains of animals and plants that are embedded in its substance, there can be no doubt but that *chalk is the hardened deposited mud of an extinct ocean.* Fossil sea-eggs are, perhaps, the most numerous of these remains, and are found preserved both in the chalk and flint. Sometimes they are entirely filled with solid black flint, the white and partly translucent shell, formed of crystallized carbonate of lime, remaining on the exterior. Others, but these are rare, are hollow, with beautiful and regular crystals of carbonate of lime lining the interior of the shell. But the majority are filled with chalk.

Corals and sponges are met with in great numbers, particularly the latter.

Our common white chalk is also full of excessively minute shells and corals. From a pound of the white chalk at Brighton, at least a thousand of these tiny fossils have been obtained. They appear to the eye like particles of chalk, but when examined with a strong magnifying power, are found to be fossils in a beautiful state of preservation. Others, indeed, incalculably more minute, have been observed; for it appears that the white mealy-looking casing of black flints, is formed of the shells of *infusoria.*—MISS ZORNLIN'S *Recreations in Geology.*

Carbonate of lime which, chemically, is the same substance as chalk, exists in the waters of the ocean. It is a function of corals, sea-eggs, and many other similar inhabitants of the deep, to take up this salt of lime from the water in which they exist. Dissolved, and circulating in the fluids of their bodies, the carbonate of lime is then deposited in, and forms the hard matter of, their various shells or skeletons; exactly in the same way as plants absorb carbon from the atmosphere and deposit it from their sap as wood. As whole races of these marine animals died away, it is easy to perceive how their harder and less perishable parts, (the greater number broken up by the motion of the water, and some few preserved entire as memorials of early ages,) would form, at the bottom of the ocean, a bed of carbonate of lime. Add to this, other sources of the same salt from the influx of rivers that contain it, from submarine calcareous springs, and the decompositions that would ensue from the mixing together of these various chemical solutions, and we arrive at the probable origin of the vast beds of chalk, which, subsequently were raised by extensive volcanic agency above the surface of the waters.

The remains of fish that are found in chalk are similar to existing species, which is very far from being the case with many of the organic fossils. Resemblances to the dog-fish, the salmon, and the smelt can be traced in this formation. In the chalk of Sussex, fossil fishes have been discovered with the air-bladder distended, and containing the contents of the intestinal canal, "proving sudden destruction and rapid envelopment."

The skeletons of turtles and of gigantic reptiles were, moreover, deposited in this marine museum. The remains of a reptile, named the Mosasaurus, has been found in the upper chalk of Sussex; its length must have been as much as five and twenty feet, and its organization seems to have been adapted for constant abode in the sea.

No land, or fresh-water shells, nor any bones of mammalia, have been met with in chalk, which is another proof of its marine origin. Fragments of cone-bearing trees occur, indeed, occasionally, but these bear evident signs of having been drifted, probably down the rivers that were emptied into these early oceans. The few entire plants which have been found are all allied to species that grow beneath the waters of existing seas. Iron pyrites, in the form of irregular balls, are the principal metallic body that exists in chalk. We have now noticed the most interesting objects contained in this formation, and in the following number of the Magazine will treat more particularly of its chemical, agricultural, and botanical relations.

THE path of truth is a plain and safe path; that of falsehood, is a perplexing maze. After the first departure from sincerity, it is not in your power to stop. One artifice unavoidably leads on to another; till, as the intricacy of the labyrinth increases, you are left entangled in your own snare.—BLAIR.

VIRTUE, the strength and beauty of the soul,
Is the best gift of heaven: a happiness
That e'en above the smiles and frowns of fate
Exalts great Nature's favourites; a wealth
That ne'er encumbers, nor can be transferred.
Riches are oft by guilt and baseness earned;
Or dealt by chance, to shield a lucky knave,
Or throw a cruel sunshine on a fool.
But for one end, one much neglected use,
Are riches worth your care: for nature's wants
Are few, and without opulence supplied.
This noble end is, to produce the soul;
To show the virtues in their fairest light;
To make humanity the minister
Of bounteous Providence; and teach the breast
That generous luxury the Gods enjoy.

DR. ARMSTRONG.

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CANADIAN SKETCHES.

SETTLEMENT AND BRIDGE OF BY-TOWN ON THE OTTAWA.

IV.

Upper Canada and its Inhabitants.

When it is considered that Upper Canada has been peopled almost entirely since the system of emigration has been established; or, in other words, that before the extension of emigration Upper Canada contained few but native Indian inhabitants,—it may easily be conceived that all the features presented by the towns are of a modern character. No cathedrals, no time-honoured buildings, no ancient customs, present themselves to our notice; but everything wears a new aspect.

One of the Upper Canadian towns which have risen to importance with great rapidity, viz., Kingston, is advantageously situated at the junction of Lake Ontario with the St. Lawrence, so as to command the navigation of both. The foundation of the town took place in 1783, and the streets were regularly planned, running at right angles with each other. Mr. Bouchette estimated the number of houses in 1830 at about seven hundred; but matters have progressed so rapidly since then, that it will be better to take the more recent information of Sir Richard Bonnycastle. An early settlement built by the French occupied the site of Kingston; but the name was Anglicized when the English took possession of Canada. Although Kingston consisted of but a few houses in 1783, it now presents a front of more than a mile in length, on the Ontario, and extends half a mile inland.

The lower part of the town, near the lake, is very level and convenient; but the ascent towards the newer part is rather sudden, along the edge of the limestone rocks, which then begin to show themselves, and are but scantily covered with soil. The upper portion of the town is beautifully laid out on a vast plateau of rock, which extends a long way towards the woods. From this elevated station, a magnificent view is obtained of the lake, the river, the forts, the islands, and the forests. The principal streets are Store Street, leading from the lake to the back country; and four streets running parallel with the lake. At the end of one of these streets is the Cataragui bridge, a very ingenious wooden structure, built by two American carpenters, and extending, on loose stone piers of eighty feet span, across the wide estuary of the river, in a troubled and deep water. It forms a pleasing addition to the scenery, and a very useful ornament to the town; but as its materials are perishable, and its piers not of solid masonry, the bridge is scarcely deemed worthy of such a rising and important town. The streets which approach to the water are much occupied by wharfs and quays, constructed on so large a scale that steam-boats containing a thousand passengers can draw up at the side of them. It has been remarked that when certain

canals and railroads which are now in progress shall have been completed, Kingston will no doubt become a great city, as the trade of all the surrounding countries, from the Atlantic to Lake Superior, and from Hudson's Bay to the United States, will centre in its magnificent roadstead.

But although Kingston is thus happily situated, there are circumstances which have retarded its growth very signally. Emigrants, although of course desirous of being in a position to buy and sell with the inhabitants of a considerable town, attach still more importance to the possession of a rich and fertile spot of ground. Now it happens that the soil about the eastern end of Lake Ontario, where Kingston is situated, is not so fertile as that adjacent to the western end; and hence emigrants have congregated more numerously at the latter. As Kingston may be deemed the chief town of the eastern districts, so likewise has the western district its chief town, which was formerly called York, but now Toronto. This, too, has had additional importance given to it by being made the seat of government for Upper Canada. Among the recent travellers in Canada, Sir Richard Bonnycastle appears to give the most satisfactory account of this flourishing Canadian town; and to his account we shall be chiefly indebted.

In 1794 Toronto was occupied only by savage Indians; and when Governor Simcoe visited it, only two wigwams were seen in the unbroken and stately forest which bounded the bay in which it is placed. But now, such has been the rapidity of its progress, that it contains fifteen thousand inhabitants, and spreads over a surface of more than two miles in length by a mile in breadth. The memory of the "red man" is almost extinguished at Toronto; for, excepting during the occasional visits of the civilized Indians, upon matters of business with the government, a native Indian is seldom seen there; and when there, as he is usually clothed like an European, he excites no attention or surprise. Such have been the changes produced in a few short years, in the relative positions of the two races!

The French had a small square palisadoed fort here, about a mile westward of the present garrison, the remains of which are still visible; and this was called Fort Tarento or Toronto, supposed to be the name of an Italian engineer employed by the French in its construction. The country in the neighbourhood, when cleared by the British, was gradually called Toronto; while the village erected by the British settlers in 1794 obtained the name of York. The village grew in size and importance; and at length, in 1834, Sir John Colborne, now Lord Seaton, restored to it the former name of Toronto, made it a city, and constituted it the seat of the government for Upper Canada.

Toronto stretches nearly east and west along the shores of a spacious and beautiful bay, and consists of six parallel streets, each nearly two miles in length, intersected by cross ones at right angles, at every two or three acres distance, and the whole depth being about a mile. The value of property within the town is enormous. Acre-lots sold by the government, even at some distance from the heart of the town, have obtained so much as five or six hundred guineas each. Building-ground, in the populous streets, is worth from ten to twenty pounds per foot; and in this way many persons have suddenly become wealthy; for the value of the land a few years ago was very small. Until about the time of the changes made by Lord Seaton, the buildings in Toronto were mostly of wood, stone not being found in sufficient quantity in the neighbourhood. It has however been found that the soil is an excellent brick-clay; and this has led to the employment of a more durable material. In some of the principal streets, not only have substantial brick houses been built, but the shops display the London luxuries of plate-glass windows, and other attractions of a similarly showy kind. None of the public buildings display much splendour. The principal structures are the Parliament Buildings; the Public Offices; the English, the Scotch, and the Roman Catholic Churches; Dissenters' Chapels; the Bank of Upper Canada; the Market-house; the City or Town-hall; and the Upper Canada College.

In Toronto unite the great roads from the Niagara and Western districts; the George Street, a straight road of thirty-six miles from Lake Simcoe; and the Eastern Road, leading to Kingston and Lower Canada. All these roads are well laid out for several miles from the city. There is a fishery established by the municipal authorities on the lake-shore of the peninsula, opposite to the city, where abundance of herrings and salmon-trout are caught. In the winter when the bay is frozen over, huts are erected on the ice, and fish are speared by torch-light through holes made in the ice.

Proceeding from Toronto to Perth, to Goderich, or any other of the newly established towns in Upper Canada, we find that one and all bear a considerable resemblance either to Kingston and Toronto, or to those which have grown up in the way depicted in our notice of the emigrants' log-houses. The humble villages are inhabited by English, Scotch, or Irish, just as the tide of emigration happened to turn in each particular instance; and these inhabitants carry with them the habits, thoughts, attachments, religion, style of dress, &c., which distinguished them in their native country. If the towns are of larger size and importance, they contain many government, official, military, and legal personages, who carry with them from England the tone of social intercourse befitting their station. Hence, there is nothing to describe in reference to the inhabitants of Upper Canada, so marked and singular as that which we had to detail concerning the Lower Canadians; no admixture of French and English, of feudal with modern tenures; of modern dresses with dresses of past generations. In the smaller towns and villages the social intercourse is generally kind and friendly, the interests of all rendering mutual aid advantageous.

In the larger towns, however, there is frequently a display of assumption, of vanity, of petty party spirit, such as frequently marks a town suddenly shooting up into importance. If Mrs. Jameson's picture of society at Toronto be correct, it is certainly not a pleasant one:—

I did not expect to find here in this new capital of a new country, with the boundless forest within half a mile of us, on almost every side—concentrated, as it were, the worst evils of our old and most artificial social system at home, with none of its *agrémens*, and none of its advantages. Toronto is like a fourth or fifth rate provincial town, with the pretensions of a capital city. We have here a petty colonial oligarchy, a self-constituted aristocracy, based upon nothing real, nor even upon anything imaginary; and we have all the mutual jealousy and fear, and petty gossip, and mutual meddling, and mean rivalship, which are common in a small society of which the members are well-known to each other, a society composed, like all societies, of many heterogeneous particles; but as these circulate within very confined limits, there is no getting out of the way of what one most dislikes; we must necessarily hear, see, and passively endure much that annoys and disgusts any one accustomed to the independence of a large and liberal society, or the ease of continental life. It is curious enough to see how quickly a new fashion, or a new folly, is imported from the old country, and with what difficulty and delay a new idea finds its way into the heads of the people, or a new book into their hands.

The concluding paragraph is more satisfactory.

Yet, in the midst of all this, I cannot but see that good spirits and corrective principles are at work; that progress is making; though the march of intellect be not here in double quick time, as in Europe, it does not absolutely stand stock still.

Perhaps we cannot better illustrate the manner in which towns and villages spring up in Upper Canada,

than by noticing the remarkable spot represented in our frontispiece, viz., *By-Town*. If we notice on a map the relative positions of Montreal and Kingston, we shall see that the one lies near the mouth of the Ottawa, and the other near the mouth of the Rideau canal; and we shall also see that these two join at By-town; whereby a triangle is formed, of which Montreal, Kingston, and By-Town constitute the angles, and the St. Lawrence, the Ottawa, and the Rideau canal, constitute the sides. The existence of rapids in the St. Lawrence, between Montreal and Kingston, has led to the more circuitous water-route by the Ottawa and the canal; and this system arose thus:—Until about twenty years ago, the whole district around what is now By-Town was a vast wilderness, both on the eastern shore of the Ottawa, which is in Lower Canada, and on the western, which is in the Upper province. An enterprising American travelled in quest of lands, and proceeded up the Ottawa; he examined the country on the east bank, at the spot now under our notice, and quickly discovered its advantages. Here, in the heart of the wilderness, eighty-five miles above Montreal, was a magnificent river, flowing from afar through excellent lands, with abundance of timber, and mountains of iron ore. He knew well how to bring these resources into profitable operation; and immediately proceeded to Quebec, where he obtained a grant of the lands. He drew hundreds of settlers to the place; forests rapidly disappeared, and were succeeded by houses, inhabitants, corn-fields, meadows, and all the rural features of civilized life. Thus arose the town or village of *Hull*, situated on the eastern or Lower Canadian bank of the Ottawa; a town which has gradually risen to importance.

So far for the eastern shore. We have now to allude to the western. Colonel John By, an enterprising military engineer, was employed by the colonial government to construct a canal from the Ottawa near Hull, to the St. Lawrence near Kingston, in order that the passage from Montreal to Kingston might be made without encountering the rapids of the St. Lawrence. The difficulties which he surmounted in following this plan were so many and so vast that they have induced Sir R. Bonnycastle to award him a meed of praise somewhat excessive, viz., that,—

If ever any man deserved to be immortalized in this utilitarian age, it was Colonel John By.

The Colonel commenced operations in 1826. He selected the mouth of the canal (the Rideau,) at the spot where By-Town now stands; and carried the canal for a distance of a hundred and fifty-three miles through Upper Canada to Kingston. The work was carried on with astonishing rapidity, through a country beset with every kind of engineering difficulties, and at an expense of not much less then a million sterling.

The canal being thus planned, a town at its eastern mouth became necessary; and such a town was gradually formed, and named after the engineer. By-Town consists of two portions, the Upper and the Lower Town, and is built on opposite sides of the valley through which the canal enters the Ottawa. The lower town is inhabited chiefly by traders, and the upper by private residences. The streets are laid out as regularly as the nature of the ground will admit, and are generally wide. From the lower town a fine and picturesque road leads to the house where Colonel By lived, a neat and elegant residence, from whence one of the finest views in Canada can be obtained.

Hull and By-Town being thus formed, Colonel By conceived the bold expedient of carrying a bridge over the Ottawa from one bank to the other, at a part where falls and rapids make the river nearly impassable. A portion of this very singular bridge is seen in our frontispiece. The river is chequered by masses of rock, and small islands, which the Colonel availed himself of as parts of his line of communication. First, there is an iron bridge of one arch thrown over a branch of the river, from the shore to a small island; then a wooden bridge over a ravine in the island itself; next a wooden bridge between this island and a second; then an embankment along the third island; then three bridges, of wood, iron, and stone, respectively, to cross the channels which separate the second, third, fourth, and fifth islands, (all of which are pretty nearly in a straight line); and lastly, a stone bridge to arrive at the opposite shore. The whole distance across is about half a mile, made up of these several portions.

Colonel By died a few years ago; but his name will live in connexion with these bold engineering achievements, which are always more difficult and note-worthy when made in a new country. The bridge is said to have partly gone to decay since the Colonel's death.

Toronto gives us a picture of an Upper Canadian town established mainly by the government; By-Town of one formed by an individual who drew round him artis ans and workmen; and Hull of one established by a settler in the Bush; and these may be taken as types of the growth of all the towns in the province, both as respects the buildings which constitute the towns, and the tone of society among the inhabitants.

In earth, in ocean, sky, and air,
All that is excellent and fair,
Seen, felt, or understood,
From one eternal cause descends,
To one eternal centre tends,
With God begins, continues, ends,
The source and stream of good.

JAMES MONTGOMERY.

MEN need not go out of their daily work and stated engagements, to be favoured with the vouchsafements of God's bounty: nay, by staying steadily and working diligently within their line of duty, in that state of life to which it has pleased God to call them, they are most likely to be visited by the bounty of God.—BISHOP MANT.

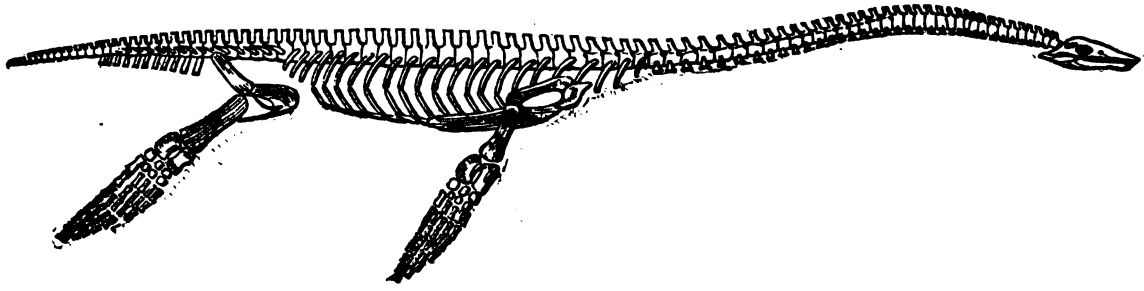
WHEN slumbers, soft as noiseless snow,
Descend upon mine eyes,
Lord! let me sink to rest as though
I never more should rise!
Let Thy blest Spirit, from my breast,
The world and sin have driven,
So that if death these lids have prest,
My soul may wake in heaven!—A. M. PORTER.

A LADY applied once to the late benevolent Mr. Reynolds of Bristol, on behalf of an orphan. After he had given liberally, she said, "When he is old enough, I will teach him to name and thank his benefactor." "Stop," said the good man, "thou art mistaken; we do not thank the clouds for the rain. Teach him to look higher, and thank Him who giveth both the clouds and the rain."

THERE is a tear more sweet and soft
Than beauty's smiling lip of love;
By angels' eyes first wept. and oft
On earth by eyes like those above:
It flows for virtue in distress,
It soothes, like hope, our sufferings here;
'Twas given and it is shed, to bless—
'Tis sympathy's celestial tear.—?

EXAMPLES of religious consideration on some particular occasions are not proofs, that Religion is firmly and durably established in the bosom. Gold is not known to be genuine until it has stood the test of fire. The crop is not estimated by the blade, but by the harvest. Wait until religion has, for some time, been tried by the temptations of life, before you pronounce on its reality.—GISBORNE.

THE Bible is by far the most inexhaustible Book in the world, even laying aside its Divine origin altogether. For its great antiquity, simplicity of narrative, splendour of poetry, and wise and holy injunctions, there is no work once to be compared with it.—JAMES HOGG, *the Ettrick Shepherd*.



THE FOSSIL PLESIOSAURUS.

HAVING in a former number* given a description of the Ichthyosaurus, or Fish Lizard, we now proceed to notice its remarkable ally, the *Plesiosaurus*, so named in consequence of its great resemblance to the lizard tribe, *plesion* being the Greek word for *near*.

This remarkable reptile, which is known only in a fossil state, was of gigantic size. Its body and paddles greatly resembled those of the Ichthyosaurus, but the former was rather more bulky, and the latter longer, and possessed more power. It had a very long neck closely resembling the neck of a swan, terminating with a head like that of a lizard, at the same time partaking of the character of the head of the Ichthyosaurus. The neck, backbone, and tail together, were composed of upwards of ninety vertebræ, thirty-three of which formed the neck. These vertebræ did not bear so great a resemblance to the fish tribe as those of the Ichthyosaurus, nor were they so well adapted for rapid motion. The ribs were like the Chameleon's, being formed to contain a capacious set of lungs, and to rise or fall as those lungs became inflated or emptied.

Such are the strange combinations of form and structure in the Plesiosaurus; a genus, the remains of which, after interment for thousands of years amidst the wreck of millions of extinct inhabitants of the ancient earth, are at length recalled to light, and submitted to our examination, in nearly as perfect a state as the bones of species that are now existing upon the earth†.

The Plesiosaurus appears to have lived in shallow seas and estuaries, and to have breathed air like the Ichthyosaurus and the modern *cetacea* or whale-tribe. Five or six species have already been discovered, some of which attained an enormous size.

We cannot describe the habits of this remarkable creature better than in the words of the late Reverend W. Conybeare, who discovered the genus.

That it was aquatic (he says) is evident, from the form of its paddles; that it was marine is almost equally so, from the remains with which it is universally associated; that it may have occasionally visited the shore, the resemblance of its extremities to those of the turtle may lead us to conjecture; its motion, however, must have been very awkward on land; its long neck must have impeded its progress through the water; presenting a striking contrast to the organization which so admirably fits the Ichthyosaurus to cut through the waves. May it not, therefore, be concluded (since in addition to these circumstances its respiration must have required frequent access of air) that it swam upon or near the surface; arching back its long neck like the swan, and occasionally darting it down at the fish which happened to float within its reach? It may, perhaps, have lurked in shoal water along the coast, concealed among the seaweed, and raising its nostrils to a level with the surface from a considerable depth, may have found a secure retreat from the assaults of dangerous enemies; while the length and flexibility of its neck may have compensated for the want of strength in its jaws, and its incapacity for swift motion through the water, by the suddenness and agility of the attack which they enabled it to make on every animal fitted for its prey, which came within its reach.

Before concluding our account of this most extraordinary creature, we must notice a particularly striking part of its organization namely, its paddles, which were an improvement upon the fins of fishes, forming, at the same time, the type of the legs of quadrupeds and of the arms of mankind.

Thus (says Dr. Buckland) even our own bodies and some of their most important organs are brought into close and direct comparison with those of reptiles, which, at first sight, appear the most monstrous productions of creation; and in the very hand and fingers with which we write their history we recognise the type of the paddles of the Ichthyosaurus and Plesiosaurus.

J. G. C.

SOME of Astley Cooper's pranks (when a boy) were of the most eccentric and amusing description, while others must have required a degree of cleverness and ingenuity in their execution, and a command over the expression of his features such as boys at his period of life are not often found to possess. The following is one which he often related at his table, and which, as he described it, never failed to set his listeners into a roar of laughter, in which he himself always heartily joined. It has lately been corroborated to me by persons still living at Yarmouth.

Having taken two pillows from his mother's bed, he carried them up to the spire of Yarmouth church, at a time when the wind was blowing from the north-east, and as soon as he had ascended as high as he could, he ripped them open, and shaking out their contents, dispersed them in the air. The feathers were carried away by the wind, and fell far and wide over the surface of the market-place, to the great astonishment of a large number of persons assembled there. The timid looked on it as a phenomenon predictive of some calamity,—the inquisitive formed a thousand conjectures,—while some, curious in natural history, actually accounted for it, by a gale of wind in the north blowing wild fowl feathers from the island of St. Paul's. It was not long, however, before the difficulty was cleared up in the doctor's house, where it at first gave rise to anything but those expressions of amusement which the explanation, when circulated through the town, is reported to have excited. I think my uncle used to say that some extraordinary account of the affair, before the secret was discovered, found its way into the Norwich papers.—*Life of Sir Astley Cooper.*

HIM fortune cannot sink, nor much elate,
Whose views extend beyond this mortal state;
By age when summoned to resign his breath,
Calm, and serene, he sees approaching death,
As the safe port, the peaceful silent shore,
Where he may rest, life's tedious voyage o'er:
He, and he only, is of death afraid,
Whom his own conscience has a coward made;
Whilst he, who Virtue's radiant course has run,
Descends like a serenely setting sun,
His thoughts triumphant Heaven alone employs,
And Hope anticipates his future joys.

SOAME JENYNS.

EVERY happiness is the more valuable, as it is capable of being made more general.—DEAN STANHOPE.

* See *Saturday Magazine*, Vol. XXII., p. 136.
† BUCKLAND'S *Bridgewater Treatise*, p. 203.

NATURAL HISTORY OF CHALK.

II.

THE geographical distribution, general properties, and geological nature of chalk were noticed in the former part of this paper. We now proceed to state its chemical qualities and agricultural uses.

The chemical name of chalk is Carbonate of Lime. *Lime*, the well known material for mortar and cements, is the oxide of the metal Calcium. When pure, its colour is a very pale grey; it has a sharp and burning taste, and when exposed absorbs watery vapour and carbonic acid gas from common air, and so becomes changed into carbonate of lime. *Carbonic-acid Gas* is formed by a mixture of carbon with oxygen. It is this gas which escapes upon the opening of a bottle of the "soda-water" of the shops. The refreshing qualities of spring-water arise from the same acid, of which water spontaneously absorbs its own bulk. Carbonic-acid Gas is heavier than atmospheric air, and may be poured from one vessel to another like water; for this reason it is frequently found to occupy the lower parts of wells, caverns, and mines, and is the Choke-damp of the miners. In these cases it exhales from crevices in the earth, being produced from deep and unknown sources. By its union with lime is formed the *carbonate of lime*. This is the most abundant compound of lime which occurs in nature, and it is calculated that one eighth of the entire crust of the globe is constructed with it. "It exists in all river and spring water, and consequently in the ocean, and is an essential ingredient in all fertile soils." Crystallized carbonate of lime is called Calcareous spar; what is termed Iceland spar is this substance in its primitive or simplest form, and of extreme purity. All the varieties of marbles and limestones, chalks and marls, are also principally composed of it.

CHALK, then, is to be considered as a Carbonate of Lime, which is composed of . . . . Carbonic Acid, containing Carbon / Oxygen; Lime, containing . . Calcium

Carbonate of lime is sparingly soluble in water, but is dissolved by carbonic acid in excess, and hence its presence in the spring water of calcareous districts. The quantity of carbonic acid contained in water, over and above that required to form the carbonate of lime, is expelled by boiling. The carbonate of lime which was dissolved in that excess of acid is precipitated, and forms the grey flaky crust that may be observed upon the inside of tea-kettles and boilers.

Chalk effervesces strongly with acids. If diluted sulphuric acid be poured over it, its carbonic acid gas will be set free, and escape into the atmosphere, while the lime will unite with the former acid to form sulphate of lime. In analyzing soils, muriatic acid is used for the detection and separation of chalk, or carbonate of lime. Lime having a greater affinity for that acid than for the carbonic acid, the latter escapes in the form of gas, and muriatic acid and lime remain under the name of muriate of lime, otherwise called chloride of calcium. As, however, the muriatic acid also dissolves, with the lime, some of the iron which is a constant ingredient in soils, and likewise takes up a very small quantity of the alumina, or matter of clay, two other processes, the description of which would be too technical for our present purpose, are necessary for the correction of these probable errors.

If chalk is burnt in close vessels its chemical constitution remains unchanged. Sir James Hall exposed some powdered chalk to great heat and pressure. He succeeded in fusing it without the escape of carbonic acid; the product being a close and compact form of carbonate of lime, resembling marble, instead of soft and porous chalk. It is thus that marble is, in fact, supposed to be prepared in nature, deep within the bowels of the earth, from a loose and porous carbonate of lime subjected to enormous heat and pressure.

If chalk, however, or limestone, is burnt in the open air, as in a kiln, chemical decomposition ensues. Water and carbonic acid are driven off at a red heat; and caustic lime remains. This, when mixed with any moist, fibrous, vegetable matter, forms a nutritive manure. But lime, when exposed to air, absorbs water and carbonic acid, and is changed again into the carbonate; it is, therefore, necessary that when used for manure it should be ploughed into the soil as speedily as possible, and not left in heaps upon the surface.

In agriculture, chalk should be considered with respect to its separate action as a soil, and subsoil. The chief ingredients in soils are flinty sand, lime, and alumina, or the matter of clay. Neither of the two first, in their pure state, constitute a fertile soil.

Chalk, or lime, may abound in a higher proportion than clay; and sand in a higher proportion than either clay or chalk, without causing barrenness. The sterility of sand is proverbial; extensive tracts of chalk occur in France, which are from their poverty almost uninhabited; and the chalk districts of England support but a scanty population compared with that of other portions of the island which are as exclusively devoted to agriculture.—*Practical Chemistry for Farmers*, by Joshua Trimmer.

Where, however, these soils, which by themselves are unproductive, are mixed up together either by art or nature, they constitute a fertile land. The tract of country which extends from near Sittingbourne to the foot of Broughton hill, bounded on the north by the estuary of the Thames, and on the south by chalk hills, is an example of the improvement of barren soils.

The soil is a calcareous loam, formed of the mingled ruins of the chalk, of that stratum of clay called the London clay, and of the sands and gravels which occur towards its lower part. The superior productiveness of this tract of country to the bare sides and summits of the chalk hills, or to those points where the surface consists of uncovered clay, as between Broughton and Canterbury, or of sand and gravel, as at Bexley Heath, is visible to the passing traveller.

When mixed with fine siliceous, or flinty sand, and finely divided clay, chalk constitutes a "loam."

The soils best adapted (says Abercrombie) for moderating the excesses, and compensating the deficiences of heat and moisture in different seasons are compositions of sand, pulverized chalk, and finely divided clay, with a proportion of animal or vegetable matter.

A chalky soil is highly advantageous to garden crops, provided it be not too near the surface; as a soil it is barren, but as a subsoil excellent.

In the Isle of Thanet, and other districts, where the subsoil is chalk to a considerable depth, the verdure of the grass, and of the young trees and shrubs, is often retained during parching seasons, when, in many other situations, the grass is entirely scorched, and the trees lose their leaves, owing to the continuance of dry weather: this was particularly observable in the hot summer of 1818. Chalk absorbs moisture readily, and retains it tenaciously; hence, in hot, dry summers, it gradually affords moisture to the roots of plants at a time when more open and porous soils are comparatively deprived of moisture.—TOWERS's *Domestic Gardeners' Manual*.

"Chalk," says the author of the *English Gardener*, "if it be too near the top is not good; but it is better than clay or gravel, and by means of trenching, chalky soil may make a very good garden: for chalk never burns in summer, and is never wet in winter; that is to say, it never causes stagnant water. It absorbs it, and retains it, until drawn up by the summer sun. And hence it is that the chalky downs are fresh and green, while even the meadows in the valleys are burnt up, so as to be perfectly brown."

With respect to the depth of mixed soils necessary to convert the chalky subsoil into an advantageous bottom, some misapprehension has existed. Mr. Towers observes,

After the lapse of some years, and enlarged experience and

observation, I have found reason to change my opinion as regards the depth of fruit-tree borders. I have seen the finest fruit produced by wall-trees, whose roots rested upon a bed of sheer chalk, scarcely twelve inches below the surface; and it stands to reason that, where trees are trained, in order to check the *growing principle*, and to induce *fertility*, luxuriance of growth should not be stimulated by a *deep bed* of rich and nutritive earth. . . . We do not require luxuriance but a regular production of medium wood, which will ripen early; such wood alone is qualified to bear fruit in sufficient abundance.

Upon land which contains chalk at or near the surface snow lies longer perhaps than upon any other soil under similar conditions. This circumstance would seem to mark it as somewhat cold for vegetation, if we were unacquainted with the fact that snow cherishes terrestrial and vegetable warmth by preventing the radiation of heat. In the hotter months, this radiation of heat is, from chalk, accompanied by evaporation of moisture, which renders the local climate inferior, on the score of health, to a drier situation. In the very proportion in which it is, under these circumstances, favourable to vegetation, is it weakening to the powers of animal life. The constant damp warm atmosphere prepares the human constitution to receive disease more readily, and to retain it beyond the usual periods. It forms a rapid channel for the diffusion of noxious gases that arise from organic decompositions. But if the surface of the land, and the precincts of dwelling-houses, are kept clean, and the excess of rains that is not required for agricultural wants drained into proper reservoirs, this rock cannot be considered otherwise than healthy.

The qualities of *manures* depend upon their physical, or mechanical, and chemical characters. The physical properties of chalk, as a manure, are its porosity, its attraction for water, and its rapid disintegration after the absorption of water. Clay is neither porous to admit either rains or atmospheric air in sufficient quantities, nor is it naturally broken up into such small fragments as permit the easy extension of the roots of plants between their interstices. But it is evident that it would be rendered more porous and disintegrated by the addition of chalk. The latter, crumbling down under the action of atmospheric moisture, is ploughed into the clay, and effectually prevents it from caking again together. The land becomes less *stiff*, and is worked with a less amount of labour. These are the mechanical actions of chalk; its main chemical effects are to add lime to soils deficient in it; and to fix and saturate free acids, and some acids in combination, naturally existing in the soil, and which are prejudicial to vegetation. Chalk, at the rate of from twenty to forty tons per acre, has long been used with great advantage on the clays of Essex.

Abercrombie remarks that as both chalk and clay have an attraction for the fluid and volatile solutions of oil (which occur in manures,) a limited portion of these earths contributes to form a rich and generous soil. In the formation of a fruit garden lumps of chalk form an appropriate foundation, which is to be covered with loam to the depth of eighteen inches.

The supply of water obtained from chalk for domestic purposes is deficient at high levels unless wells are sunk to a great depth. A good body of water commonly rises from the chalk which lies under the London clay, although the latter yields no water. This part of the subject has, however, already been explained in the *Saturday Magazine*, Vol. XI., p. 191.

We conclude with a list of the wild flowering plants of England which mostly grow upon a chalky soil. For the sake of greater simplicity these have been referred to their natural habitats, or localities, viz.,—

I. Pastures.

English Names.	*Latin Names.*
Spiked Speedwell	*Veronica spicata.*
Pasque Flower	*Anemone Pulsatilla.*
Common Burnet	*Poterium Sanguisorba.*
Common Burnet Saxifrage	*Pimpinella saxifraga.*
Clustered Bell-flower	*Campanula glomerata.*
Common Dropwort	*Spiræa Filipendula.*
Cow Grass	*Trifolium medium.*
Sulphur-coloured Trefoil	*Trifolium ochroleucum.*
Spring Vetch	*Vicia lathyroides.*
Narrow-leaved Vetch	*Vicia angustifolia.*
Ladies' Traces	*Spiranthes autumnalis.*
Meadow Oat-grass	*Avena pratensis.*
Lesser Meadow Rue	*Thalictrum minus.*
Narrow-leaved Flax	*Linum angustifolium.*
Bastard Toad Flax	*Thesium linophyllum.*
Autumnal Gentian	*Gentiana Amarella.*
Fly Orchis	*Ophrys muscifera.*
Bee Orchis	*Ophrys apifera.*
Spider Orchis	*Ophrys aranifera.*
Late Spider Orchis	*Ophrys arachnites.*
Spotted Cat's Ear	*Hypochœris maculata*
Blue Erigeron	*Erigeron acre.*
Mountain Meadow Saxifrage	*Seseli Libanotis.*

2. Fields.

Candy Tuft	*Iberis amara.*
Red Hemp Nettle	*Galeopsis Ladanum.*
Corn Hedge Nettle	*Stachys arvensis.*
Ploughman's Spikenard	*Conyza squarrosa.*
Common Kidney Vetch	*Anthyllis vulneraria.*
Rough Trefoil	*Trifolium scabrum.*
Mongrel Poppy	*Papaver hybridum.*
Broad-leaved Bur Parsley	*Caucalis latifolia.*
Three-horned Bedstraw	*Galium tricorne.*

3. Corn-Fields.

Field Larkspur	*Delphinium consolida.*
Small Bur Parsley	*Caucalis daucoides.*

4. Borders of Fields.

Common Parsnep	*Pastinaca sativa.*
Bristly Helminthia	*Helminthia echioides.*

5. Banks.

Drone Orchis	*Ophrys fucifera.*
Green Musk Orchis	*Ophrys monorchis.*
Squinancy Wort	*Asperula cynanchi*
Creeping-rooted Toad Flax	*Linaria repens.*
Tufted Horse-shoe Vetch	*Hippocrepis comosa.*

6. Hedges.

Common Berbery	*Berberis vulgaris.*
Hairy St. John's Wort	*Hypericum hirsutum.*
Orpine	*Sedum Telephium.*
Honewort	*Sison amomum.*

7. Woods and Thickets.

Green Hellebore	*Helleborus viridis.*
Bear's Foot	*Helleborus fœtidus.*
Wood Hawkweed	*Hieracium sylvaticum.*
Hairy Violet	*Viola hirta.*
Sweet Milk Vetch	*Astragalus glycyphyllos.*
Almond-leaved Spurge	*Euphorbia amygdaloides.*
Bird's-nest Neottia	*Neottia Nidus avis.*

8. Bushy Hills.

Mountain St. John's Wort	*Hypericum montanum.*
Common Juniper	*Juniperus communis.*
Brown Orchis	*Orchis fusca.*

9. Mountainous Heaths.

Purple Mountain Milk Vetch	*Astragalus Hypoglottis.*

10. Hills and Downs.

Perennial Flax	*Linum perenne.*
Base Rocket, or Wild Mignonette	*Reseda lutea.*
Saint-foin	*Onobrychis sativa.*
Perfoliate Yellow-wort	*Chlora perfoliata.*
Monkey Orchis	*Orchis tephrosanthos.*
Dwarf Orchis	*Orchis ustulata.*
Military Orchis	*Orchis militaris.*
Mountain Cineraria	*Cineraria campestris.*

11. Cliffs.

Common Fennel	*Fœniculum vulgare.*
Red Valerian	*Centranthus latifolius.*
Nottingham Catchfly	*Silene nutans.*

12. Chalk-Pits.

Wild Tulip	*Tulipa sylvestris.*
Green Man Orchis	*Aceras anthropophora,* (and on Banks.)

13. Waste-Ground.

Stinking Groundsel	*Senecio viscosus.*
Least Lettuce	*Lactuca saligna.*
Fetid Borkhausia	*Borkhausia fœtida.*

SEASONAL WILD FLOWERS.

JULY.

O 'tis a sight the soul to cheer,
The promise of the fruitful year,
When God abroad his bounty flings,
And answering nature laughs and sings!
He "for the evil and the good,"
For them, who with heart's gratitude,
And them who thanklessly receive,
The blessings He vouchsafes to give,
Bids from his storehouse in the skies
"His rain descend, his sun arise*."

— MANT's *British Months.*

COLD must be the heart of that individual, who can look abroad upon a July landscape, rich with blessings as it is rich in verdant loveliness and grace, without some sense of the bounty of that Divine hand,

That, ever busy, wheels the silent spheres!
Works in the secret deep; shoots, steaming, thence
The fair profusion that o'erspreads the Spring;
Flings from the sun direct the flaming day;
Feeds every creature.

The waving corn is the grand object of interest during this and the coming month, but as our subject leads us to the minor features of the landscape, we give but a passing notice to this bounteous provision for man; we tread the paths that lead through the midst of it, rejoicing as we go, and watching the golden waves of the sea-like expanse, as thep rise and fall before the summer gale. There is a pleasant sound like the rushing of waters in the movement of so many thousand tall blades, and as we keep the little foot-track that separates their hosts, we might almost fancy that we were indeed passing through waters that raise themselves as a wall on either side.

But if we turn our attention from the scene around us to the little hard-worn path we are walking on, we see some beautiful unaspiring plants, taking refuge at the feet of the tall blades, and apparently bearing the same relation to them as the low and scanty underwood to the noble denizens of the forest. One of the prettiest of these is a plant already named, but not described, that is, the common scarlet Pimpernel (*Anagallis arvensis*), belonging to the Primrose Tribe, and well known to country-people as the "Poor Man's Weather-glass." And right well is it entitled to the name, for duly at the approach of wet weather do its bright eyes close, thus giving warning to the peasant of the coming rain. It has also been remarked of this sensitive flower that in fine weather it opens from eight in the morning till four in the afternoon, so that the peasant

Can in the pimpernel's red tinted flowers,
As close their petals, read the measured hours.

The flowers of this plant are very small, and consist of one bright round petal, of a deep scarlet colour, with a violet centre. Though so minute a plant, it can scarcely fail to attract notice, because what it wants in magnitude it makes up for in brilliancy. The leaves and stems lie on the ground, and the flowers rise but a few inches above it. The leaves are egg-shaped, and frequently dotted with black on the under side; they are seated on the stem without any leaf-stalk. The species we are now describing continues to give out a succession of blossoms from June to September. It sometimes comes up as a weed in garden-ground, and there, if we were permitted to dictate on the subject, it should remain under certain restrictions. We remember a garden in which it was suffered to occupy a sunny spot in front of the greenhouse, and certainly never did pimpernel so glory in its honours. The plant acquired a size and growth altogether different from those of its relations in the corn-fields, while the number and brilliancy of the scarlet flowers excited general admiration. It was necessary to check in some degree the spreading of its roots; but as it is an annual plant, its luxuriant growth was not of much consequence.

The scarlet pimpernel is the common species, and may be seen in almost every neighbourhood; but the blue pimpernel, which is probably only a variety of this, is a rare plant only to be met with in particular districts. It is of the same size and form as the scarlet, but the colours are reversed; instead of a scarlet petal with a blue or violet centre, it has a blue petal with a spot of rich carmine colour in the centre.

The ruby and the amethyst
In it are lovely met,
This, in each petal bright impressed,
That, in the middle set.

The districts in which the blue pimpernel is found wild are said to be the neighbourhood of Mitcham, in Surrey; Bredon-hill, in Worcestershire; near Histon, in Cambridgeshire, the South Downs near Brighton, and some parts of Devonshire. This plant, on account of its rarity, is sometimes admitted where its more common but not less beautiful relation would be despised. The seeds may be sown soon after they are ripe on a border of light earth, or it may be increased by cuttings, which if placed in a hot-bed will produce flowers in about six weeks.

Before we leave the Pimpernel family we must name another and a perennial species growing on wet heaths and meadows, and called the Bog Pimpernel (*Anagallis tenella.*)

Amid the lone and heathy wild
Where cultivation never smiled,
And man, with undelighted eye
Passes the desert region by;
Lo, there *Tenella* makes her bed,
And lifts unseen her modest head.

Of fairer form and brighter hue
Than many a flower that drinks the dew,
Amid the garden's brilliant show,
Where scarce the roughening breeze may blow,
Her charms the graceful flower unveils
And bends beneath the moorland gales.

The bog pimpernel yields to none of our wild plants in elegance, but it is comparatively rare. The plant itself does not greatly differ from the other species, but the flowers are larger, and rise erect on slender stalks, much longer than the leaves. They are of a beautiful rose-colour.

Without pausing to notice the various minute plants that are to be found in the corn-field along with the scarlet pimpernel, we will proceed to seek in yonder lane, or on the high land to which it leads, for one of our chief favourites among July flowers. It is the round leaved Bell-Flower, or Hare-bell of Scotland (*Campanula rotundifolia.*) The root-leaves of this plant are round, but they wither very soon, so that when the harebell is in blossom, the stem-leaves alone, of which the lower are lanceolate, the upper linear, are to be seen. The stem is very slender and wiry, about a foot high, and bears a pale trembling bell of purest azure, so fragile-looking, and yet so hardy, so lovely, and yet so unassuming, that it well deserves to be the subject of the pretty lines at the close of this article.

Sometimes—though rarely—the flowers of the wild hare-bell are white; the plant blossoms abundantly in July and August, and wherever it is seen, it indicates an unfruitful soil. Sir James Smith gives a description of ten species of Bell-flower, but the greater part of them are rare, and it is not desirable to trouble our readers with their names.

The Wild Teazle (*Dipsacus sylvestris*) may now be seen in many of our hedges. This is a member of a very curious family of plants, and it is supposed that the fullers' teazle, so extensively used by clothiers, is only a variety of this plant. The name *dipsacus* is

* Matthew v 45.

derived from *dipsao*, to thirst, and is given on account of the upper leaves of the plant holding water. They do this to so great a degree, that after a shower we have poured from the various leaves what would be a very acceptable supply of water to a thirsty traveller. The blossoms of the teasle are lilac-coloured, numerous, and collected in a large conical head. The plant grows to the height of about four feet, and its large lance-shaped leaves are defended, as is the whole plant, with an abundance of prickles. The fullers' teazle is cultivated to a great extent in the West of England, and it is the bristly scales of the flower-heads that render the plant so valuable in dressing cloth. These bristles are just strong enough to raise the wool without tearing the cloth. The dressing of one piece of cloth is said to require from fifteen hundred to two thousand teazles. When the common teazle is in blossom, it is a great ornament to our hedgerows, from the delicate colour of the flowers, but soon after the blossoming is over the receptacle becomes dry and brown, and remains long on the stalk in that condition.

The most magnificent of wild flowers is now in blossom, for we may justly so call the Great White Water-Lily, of our ponds and slow running rivers. The flowers are frequently four or five inches in diameter, and are equally rich and delicate in their appearance, while they emit a faint but pleasing scent. Expanding only in the middle of the day, and in sunny weather, these beautiful flowers are sufficiently rare to be prized by every one, and we find them carefully cultivated in sheets of water or ponds in ornamental grounds.

> There the bright water-lilies blow,
> Their stems with gorgeous blossoms crown'd,
> 'Mid shield-like leaves that float around.

Most of the species repose their closed blossoms on the wave or sink beneath it during the night, and are only stimulated by the brightness of a fine day to rise a few inches above the surface, and unfold their beautiful petals.

> Those virgin lilies all the night
> Bathing their beauties in the lake,
> That they may rise more fresh and bright
> When their beloved Sun's awake.

The root of the water-lily is tuberous, sending down a number of long stout fibres. The leaves are heart-shaped, with lobes at the base, the flowers are pure white with yellow stamens and pistil. A grey dye is obtained from the stems of this plant, and a brown dye from the roots. The Swedes, in time of dearth, have used the roots as a substitute for corn; but in order to be made palatable, the tubers require frequent washings to divest them of their bitter taste. The Egyptians also eat the roots boiled, and convert the seed into bread.

There is an extensive family of plants which we now proceed to notice, not for the peculiar beauty or interest of its species, but because we can scarcely take a step in the country at this season of the year without encountering some one or other of them. This is the Hawkweed family, (*Hieracium*) of which we find sixteen species described by Withering, all of which have yellow or orange-coloured flowers. It is called the *Hawkweed* family, because it was the belief of the ancients that hawks sharpened their sight with the juice of this weed, on which account the French also call it *Epervière* and *Herbe à l'Epervier*. There are as many as thirty-seven exotic species, most of which are regarded as weeds. In the parterre they have an agreeable rustic appearance when in flower, which is from Midsummer to the end of Autumn. These plants belong to the same tribe as the Dandelion, (the Composite tribe) and will easily be recognised by their general likeness to that flower, although in size and habit the differences of some of the species are great. The blossom consists of numerous perfect strap-shaped florets united into one head or disk. These blossoms are seated either singly or several together on rather tall stalks, which in many of the species are destitute of leaves, or possess but one or two small lance-shaped leaves. Some of these plants grow profusely on dry banks and pastures, others in woods, or on old walls, or among rubbish, others by the sides of rivers, or in marshy places, so that wherever we go we may get specimens of hawkweed, if we know enough of the nature of Composite flowers to distinguish them among the numerous blossoms of July. As we noticed when speaking of the Dandelion, the composite flowers having *strap-shaped* florets are remarkable for their stems yielding a milky juice of a soporific quality. This is the case with the Hawkweed, as well as with the endive and lettuce, also belonging to this tribe.

It would be pleasant to dwell on many other families of plants and to collect poetical and other notices respecting the more remarkable of their species; but where shall we stop if we attempt anything like a general catalogue of flowers? The description of the various kinds of trefoil, cranesbill, St. John's wort, thistle, chamomile, orchis, yarrow, hedge-mustard, poppy, saxifrage, stonecrop, willow-herb, thrift, mullein, bindweed, &c., now in blossom might soon fill our pages to the exclusion of other subjects, and we therefore reluctantly turn away from plants that are endeared to us by many pleasing associations, and bid adieu for the season to July flowers.

THE BELL-FLOWER.

With drooping bells of clearest blue,
Thou didst attract my childish view,
Almost resembling
The azure butterflies that flew
Where on the heath thy blossoms grew
So lightly trembling.

Where feathery fern and golden broom
Increase the sand-rock cavern's gloom
I've seen thee tangled,
'Mid tufts of purple heather bloom
By vain Arachne's treacherous loom
With dew drops spangled.

Mid ruins tumbling to decay,
Thy flowers their heavenly hues display,
Still freshly springing,
Where pride and pomp have passed away
On mossy tomb and turret grey,
Like friendship clinging.

When glow-worm lamps illume the scene,
And silvery daisies dot the green,
Thy flowers revealing,
Perchance to soothe the fairy queen,
With faint sweet tones on night serene
Thy soft bells pealing.

But most I love thine azure braid
When softer flowers are all decayed
And thou appearest,
Stealing beneath the hedge-row shade,
Like joys that linger as they fade,
Whose last are dearest.

Thou art the flower of memory;
The pensive soul recalls in thee
The year's past pleasures;
And, led by kindred thought, will flee,
Till back to careless infancy,
The path she measures.

Beneath autumnal breezes bleak
So faintly fair, so sadly meek,
I've seen thee bending,
Pale as the pale blue veins that streak
Consumption's thin, transparent cheek,
With death-hues blending.

Thou shalt be sorrow's love and mine;
The violet and the eglantine
With Spring are banished,
In Summer pinks and roses shine,
But I of thee my wreath will twine
When these are vanished.

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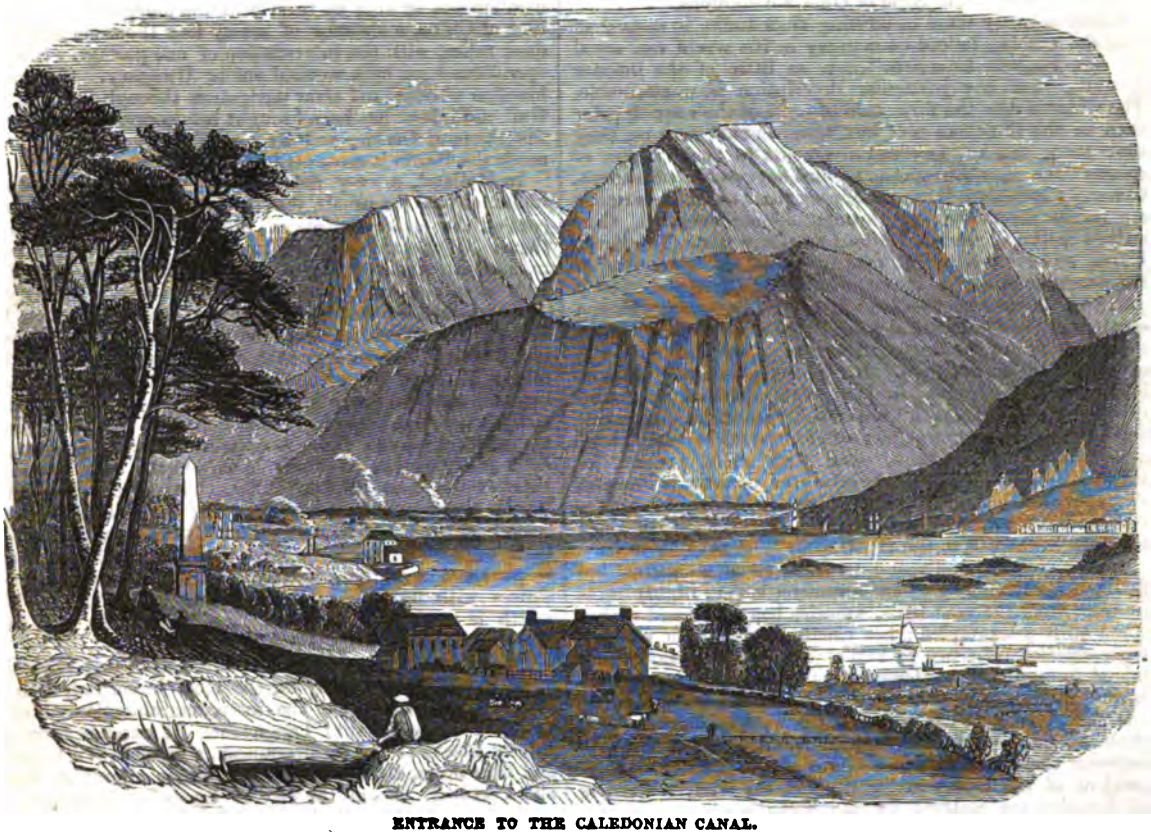
A BRIEF ACCOUNT OF CANALS AND INLAND NAVIGATION.



ENTRANCE TO THE CALEDONIAN CANAL.

INTRODUCTION.—FOREIGN CANALS.

ONE of the most notable epochs in the history of English Commerce was the introduction of *Inland Navigation*, whereby the facilities of communication between one manufacturing town and another, and the conveyance of goods with certainty and ease, were ensured. By inland navigation is meant, the transit of boats and barges either along a navigable *river*, deepened, widened, and kept in good order for that purpose, or else along an artificial *canal*, cut through the open country, and fed with water by springs turned in that direction. The enormous loads which one horse can draw on a canal so greatly exceed the power of draught on land as to become an important element in commercial arrangements; and although railroads have now in some measure superseded canals, we must not forget that canals were as important at their first introduction as railroads now are. Let us then take a rapid review of the subject, in relation to foreign canals,—the history of English canals,—the statistics of English canals,—and the practical working of canals.

It is not known when, by whom, or in what country, artificial water-communications were first constructed; though it seems extremely probable that canals which had originally been made as aqueducts for drainage, or for irrigation, came at length to be applied to the purposes of navigation. It is known that works of this kind were constructed in Egypt at a time beyond the reach of history to determine; and it is also certain that the early inhabitants of Babylonia or Chaldea, to guard against inundations of the famous rivers Tigris and Euphrates, constructed lateral ducts, or canals, which became afterwards applied to the purposes of navigation. In Greece, too, and in the southern parts of Italy, canals appear to have been constructed at a remote period.

In glancing at the Eastern countries which present vestiges of canals at the present day, we find some highly interesting circumstances connected with those of Egypt. That a canal once existed from the Mediterranean to the Red Sea, or else to the Nile, is tolerably certain; and the present Pasha of Egypt appears to contemplate either the restoration of this canal, or the construction of a railroad on the same route. Buonaparte, when he was in Egypt in 1799, ordered a survey of the district to be made by which the exact line of canal was discovered. Of ninety miles of inland water-communication of which it consisted, sixty-five appeared to have been artificially cut; and of this portion, about one-half yet exists in many parts so entire that its dimensions can be measured with tolerable accuracy, and little more than cleaning would be required to render it again fit for navigation. It is supposed that in former times the inundation of the Nile, when not restrained by artificial barriers, must have reached to within two or three miles of the Red Sea; and it is thence conjectured that the practicability of forming a canal may have suggested itself at an early period to the minds of the Egyptians, since a shallow trench or furrow, two or three miles long, would have united the waters of the Nile and Red Sea. Whether this canal will be restored, or a railroad constructed, is uncertain; but we believe that an eminent English engineer has been recently consulted on the subject by the Pasha.

India is furnished with such magnificent rivers as to render the cutting of canals almost a work of supererogation. The Indus, the Ganges, and the Bramapootra; the

Jumna, the Nerbuddah, and the Sutledge, with other rivers of lesser note, furnish India with an extensive system of inland navigation. There are many small canals connected with the Indus, but they are principally for purposes of irrigation, and the greater part of them are mostly natural creeks, having no water except during the swollen state of the river. Within the last few years several short canals have been commenced to render the Ganges a more convenient water-communication; a canal has been cut between the Ganges and the Bugruttee rivers; another has been made to unite the Ganges with the Hoogly; several short canals, constructed by some of the former Sultans of India, have been restored; and one, seventy miles in length, is now being cut through the King of Oude's dominions.

China is vastly more interesting than India, in respect of artificial canals; indeed no country in the world can equal it; but English travellers know so little of the interior districts, that any particular description is unattainable. The Chinese date the formation of some of their canals prior even to the Christian era; but, however that may be, they have made scarcely any improvements in their modes of construction since Europeans became acquainted with them. Generally speaking, it would appear that the Chinese canals are rather rivers flowing through altered channels, than strictly artificial communications by still water. The Great Canal, however, is a vast monument of the ingenuity of this singular people. It occupied one hundred and twenty years in its construction, and is said to have engaged the services of thirty thousand men. It was commenced about the latter end of the thirteenth century, and finished in the early part of the fifteenth. It is about a thousand miles in length, and is supplied, in the greater part of its course through a flat and alluvial country, by innumerable streams and pools. Strong dykes, formed of alternate layers of earth and straw, and sometimes cased with stone, prevent its waters from overflowing wherever the country is low and swampy; the level of the soil being sometimes as much as twenty feet below that of the canal. In other places a bed has been excavated to the depth of sixty or seventy feet.

In America we find vast enterprises in canal-cutting, befitting a people among whom commerce is very highly developed. Since the year 1815, America has progressed with a speed quite unexampled; her canals having been planned with especial reference to two objects, 1st. to ensure a safe inland communication along the Atlantic border in case of a war with any power possessing a superior maritime force; and 2nd. to connect the waters of the western districts with those of the eastern, and thereby facilitate the intercourse between these two distant sections of the country. Independent of the canals artificially cut, the western districts of America are watered by the gigantic streams of the Mississippi and the Missouri, of which it has been well observed, that "the navigation of these great rivers, as well as that of many others, which was formerly very difficult against the stream, has been wonderfully facilitated by the application of steam-power, which has enabled the navigator to propel his vessel up the river, and to triumph over the violence of the torrent; and thus the rivers by which great continents are intersected have been rendered doubly valuable in facilitating the inland communications of the country, and in laying open the most remote and formerly sequestered scenes to the inquisitive researches of travellers."

The aggregate length of the canals in the United States exceeds two thousand miles; some of the states present physical difficulties which render the construction of canals almost impracticable; while others present a vast field and great inducements for prosecuting such works on a magnificent scale. The two most important of them are the Erie canal and the Pennsylvania canal. The first of these extends from Lake Erie nearly to the town of New York, a distance of almost four hundred miles; it is the longest artificial canal in the world, for those of China are partly rivers. The other is a singular combination of canal and railway; it comprises a railway from Philadelphia to Colombia, eighty miles long, then a canal a hundred and seventy miles long, then another railway of forty miles, and lastly a second canal of a hundred miles, forming altogether a length of four hundred miles: this stupendous undertaking effects a passage across the lofty Alleghany mountains.

The portion of America pertaining to England exhibits a few specimens of canal engineering, but not by any means on so extensive a scale as those of the United States. The Rideau canal, about a hundred and thirty miles in length, consists of twenty miles of artificial cutting, while all the rest is formed by a chain of small lakes. The Welland canal, connecting Lakes Erie and Ontario, is formed to avoid the cataract of Niagara, by opening a water-communication from a point above it to another point below it. The other canals of Canada are small and unimportant; although the splendid lakes, and the rivers connected with them, form a fine system of inland navigation.

In Europe we find canals in almost every country, on a greater or lesser scale. In Russia the Caspian is connected with the Baltic by a water-communication, consisting partly of the Lake Ladoga, partly of the River Volga, and partly of canals. The Baltic is connected with the Black Sea in a similar way; and, indeed, rivers have been combined with canals so successfully in Russia, that a water-communication can be kept up from St. Petersburgh to the frontiers of China, a distance of nearly four thousand five hundred miles, with the intervention of one portage. Similar operations have been worked out in Hungary. By a combination of canal and river navigation through Sweden, the Gulf of Finland has been brought into communication with the German Ocean; and by a similar enterprise in Denmark the Baltic is connected with the German Ocean.

In Holland, a very flat alluvial country, so extremely numerous are the canals, that it is said one twenty-sixth part of the entire surface of the country is taken up by them. Of these the Great Ship Canal is one of the most magnificent undertakings of the kind ever executed. If we look at a map of Holland, we shall see that the city of Amsterdam is on the borders of an inland sea, called the Zuyder Zee, which is connected with the German Ocean; and it would thence seem that a very easy communication might be kept up with the city. But it unfortunately happens that the water is so shallow near the city as not to admit a heavily laden ship; and hence it was determined to construct a canal from Amsterdam to the open sea, so large and deep as to admit laden ships. This was done between the years 1819 and 1825. The canal is fifty miles long, a hundred and twenty-four feet wide at the water's surface, fifty-six at the bottom, and twenty feet deep. It receives its supply of water from the sea at high tides; and is provided with two tide-locks at the extremities, two sluices with flood-gates, and eighteen drawbridges. The width is so considerable that two frigates can pass each other in the canal.

France is well supplied both with canals and navigable rivers. Of the former, by far the most important, both in respect to its extent, and the intercommunication which it supplies, is the Canal of Languedoc. It extends from the Bay of Biscay to the Mediterranean, a distance of a hundred and fifty miles, thus avoiding the whole circuit of Spain and Portugal. From the Bay of Lyons to Naurouse, the canal rises more than six hundred feet, by means of seventy-four locks; and then descends to Thoulouse about two hundred feet. The breadth is about sixty feet, and the depth six or seven.

Origin of English Canals—the Labours of Brindley.

Great Britain was far behind many other countries of Europe in the formation of canals. It was not until nearly the commencement of the reign of George III. that the self-educated engineer, James Brindley, gave the first indication of what England could effect in this direction, when her energies were once steadily directed thereto. Brindley was born of parents who, from improvidence or misfortune, were unable to give him any education; and he was obliged to contribute towards his own support by labour, at a time when he ought to have been learning the rudiments of education at school. In his seventeenth year he contrived to get himself bound apprentice to a millwright, at Macclesfield, from whom he learned the nature and construction of machinery, and by whom he seems to have been highly esteemed for his industry and skill. At the expiration of his apprenticeship he set up in business for himself as a millwright and engineer, and soon obtained a very extensive connexion, being entrusted with large commissions, for erecting steam-engines, water-mills, silk-mills, draining coal-mines, &c. At length he was applied to by the Duke of Bridgewater in relation to a subject which ever afterwards formed the chief part of his pursuits.

The duke, having calculated the gains that might accrue from a canal which should connect his estate at Worsley, which contained valuable coal-mines, with the populous and manufacturing town of Manchester, called in the advice and practical ability of Brindley. The plan finally proposed, and for the execution of which an Act of Parliament was

obtained in 1759, was to carry a canal over the river Irwell, near Barton Bridge, to Manchester, and to conduct a branch to Longford Bridge in Stratford. This was to be accomplished without the aid of locks, by preserving the same level through the whole course of the canal. After many difficulties had been surmounted, of sufficient magnitude to have deterred an ordinary man from the undertaking, Brindley commenced that which was by far the most gigantic part of the whole, viz., to carry the canal over the river Irwell, at a height of thirty-nine feet above the surface of the water. Brindley felt confident of the practicability of the design; but at the same time he wished the duke to take the opinion of some able engineer before the attempt was made; for though such an enterprise is now very common, at that time it was an entire novelty. A gentleman was accordingly consulted, to whom the scheme appeared to demand ridicule rather than deliberation; he is stated to have said, "that he had often heard of castles in the air, but was never before shown where any of them might be erected." But neither Brindley's confidence, nor the duke's acquiescence in his judgment, was shaken by this declaration; the work was begun in September, 1760, and in the July of the year following, a boat floated along the aqueduct. The design extended with the progress of the work; and another branch was opened from the canal, which was to be carried over the rivers Mersey and Bollan, besides many deep valleys, in its extension to the tide-way of the Mersey. Here the obstruction of locks was also avoided; high mounds of earth being raised across the valleys, the ridges of which became the bed of the canal.

The success of the Duke of Bridgewater's canal encouraged a number of gentlemen and manufacturers to entertain the idea of a navigable canal through the county of Stafford; and Brindley was engaged to survey it from the Trent to the Mersey. He reported that it was practicable to construct a canal from the one river to the other, and thereby connect the ports of Liverpool and Hull, on the two opposite coasts of the kingdom. The report being deemed favourable, and the requisite funds subscribed, this great work was commenced by Brindley in 1766, and finished by his brother-in-law in 1777. It was called the Grand Trunk canal, in reference to its importance, as a centre whence others might spring; it is ninety-three miles in length, and besides a vast number of bridges, has seventy-six locks and five tunnels. The most remarkable of these tunnels is the subterraneous passage of Harecastle, nearly three thousand yards in length, and more than seventy yards below the surface of the earth. It appears that the scheme of this canal had occupied the thoughts of engineers for twenty years before, and that Harecastle hill formed the one great difficulty which baffled them all; until Brindley took up the subject, and accomplished it.

While the Grand Trunk canal was in progress, Brindley designed and executed a canal leading therefrom to the Severn; thus effecting the important object of bringing Bristol, as well as Hull and Liverpool, into mutual water-intercommunication; this canal is forty-six miles in length, and was completed in 1772. Brindley did not live to see the Metropolis brought into connexion with the northern parts by similar means; but he planned all the arrangements for the Coventry and the Oxfordshire canals, by which the Grand Trunk was connected with the Thames.

Brindley died in 1772, after having planned a vast number of canals, which were left to be executed or finished by those who succeeded him. He was beyond all comparison the greatest canal-engineer that ever lived; and so entirely were his thoughts absorbed by this subject, that it is related of him, when asked in the House of Commons for what purpose he supposed rivers to have been formed, he replied, "to feed navigable canals." In relation to Brindley's mental powers, Mr. Phillips states:—"When any extraordinary difficulty occurred to Brindley in the execution of his works, having little or no assistance from books or the labours of other men, his resources lay within himself; in order, therefore, to be quiet and uninterrupted whilst he was in search of expedients, he generally retired to his bed, and has been known to lie there one, two, or three days, till he had attained the object in view; he would then get up, and execute his design without drawing or model—indeed it never was his custom to make either, unless to satisfy his employers. His memory was so remarkable, that he has often declared he could remember and execute all the most complex machines, provided he had sufficient time to settle in his mind the several departments, and their relation to each other. His method of calculating the powers of any machine invented by him, was peculiar to himself; he worked the question some time in his head, and then put down the result in figures: after this, taking it up again in that stage he worked it further in his mind for a certain time, and set down the result as before; in the same way he still proceeded, making use of figures only at stated periods of the question; yet the ultimate result was generally true, though the road he travelled in search of it, was unknown to all but himself, and it was not in his power to have shown it to another. The attention which was paid by Brindley to objects of peculiar magnitude, did not permit him the common diversions of life. He never seemed in his element if not planning or executing some great work, or conversing with his friends upon subjects of importance. He was once prevailed on, when in London, to see a play, having never seen one before; it had a powerful effect upon him, and he complained for several days after that his ideas were disturbed, and rendered him unfit for business. He declared that he would not go to see another play on any account."

After the death of Brindley, other engineers took up the prosecution of enterprises which he had taught them how to surmount; and in a report on the advantages of canals, an engineer makes the following remarks, which may be taken as a representative of the tone of feeling on the subject at that time,—a tone remarkably similar to that recently manifested in respect of railroads. "The advantages of these canals to this nation would be very great, as every person must allow that the stamina of our trade is the internal produce of the kingdom; and the nearer each manufacturer is to his market, the greater price his goods will take; for instance, if a person manufactures a piece of cloth (such as is usually sent abroad to America or elsewhere) in the county of Stafford where he lives, forty miles from the merchant's ship which is to carry it abroad, will he not be obliged to sell it, upon account of the heavy charge of land carriage, for a much less price than if he could convey it at an easy rate to a sea-port, by a canal, and there sell it at the same price that a factor would? Let us only consider that the factor buys up the goods or manufactures of fifty poor people, and conveys them to a merchant, at a large profit, which falls into the hands of the factor alone, and enriches only one; whereas, were each manufacturer to have the conveniency of conveying his own goods directly to the merchant, all the profits monopolized by the factor would be divided between the fifty poor persons, and enrich that number instead of one. The more hands any goods or merchandize go through, the dearer they are to the consumer, as every person through whose shop they go must have a profit; but in this case the factor monopolizes the whole profits of fifty poor manufacturers. In case of invasion or rebellion, by these canals Government would be able to transport their heaviest cannon to any part of the country in a short time: as also regiments with their baggage might be conveyed in a much safer way than by long, tedious harassing marches, through bad roads that are almost impassable, and oftentimes far round to the point they want to come to; besides the saving in artillery horses, and the expense of baggage-waggons to Government, which usually amounts to nearly as much as the pay of one-third part of the regiment for the time." Recent occurrences, happily rare in this country, have shown how vast an advantage *railroads* present for the transport of troops, beyond anything which canals could afford.

English Canals at the Present Day.

The aggregate length of the navigable canals of England is now more than twenty-two hundred miles. In addition to making canals, such of the rivers as are capable of it, have been made navigable; so that it is said there is no spot in England, south of Durham, which is more than fifteen miles distant from water communication; and in those districts which form the chief seats of manufactures, the distance is even smaller; while every considerable town of those manufacturing districts has this means of cheap and easy conveyance for receiving the raw materials which it employs, and for distributing to other parts of the country, and to the sea-ports, the finished products of its industry. There are upwards of a hundred canals in England and Wales alone, exclusive of very short cuts. Of these several are of considerable length, and have to surmount acclivities by means of a large number of locks. For example:—The Birmingham and Liverpool canal is forty miles in length, and has twenty-seven locks; the Chesterfield canal is forty-six

miles long, with no fewer than sixty-five locks; the Ellesmere and Chester is sixty miles in length, and the Lancaster seventy-six; the Grand Junction canal, ninety miles long, has ninety-eight locks, the summit level being a hundred and ninety feet above one terminus, and four hundred and seventy above the other; the Leeds and Liverpool canal is nearly a hundred and thirty miles in length, and has to surmount, by means of fifty-six locks, an ascent of more than four hundred feet, and then a descent still greater; the Oxford canal is ninety miles long, with forty locks; the Grand Trunk, so celebrated in the history of English canals, is about ninety miles, with about an equal number of locks; one canal, that of Rochdale, is remarkable as having to surmount, in a course of only thirty-two miles, an ascent of more that five hundred feet, and a descent of nearly four hundred, to effect which locks are required at an average distance of less than half a mile apart.

In some respects the Caledonian canal, extending across Scotland from sea to sea, is more remarkable than any canal in England, as being a government project, and much wider and deeper than any canal in Great Britain—or indeed, in the world, except the Great Ship Canal of Holland. A valley remarkable for its uniformity, straightness, and depth, and extending from sea to sea through two parallel ranges of steep mountains, divides the Highlands of Scotland into two nearly equal parts. The general direction of this chasm is from north-east to south-west; and besides being entered at each extremity by an arm of the sea, the rest of its bottom is for the most part occupied by a chain of rivers and lakes. The remarkably elongated form and contiguity of these lakes had long ago suggested the facility of forming an inland communication between the Atlantic Ocean and the German Sea; for it required only, in a distance of one hundred miles, to cut small canals to the aggregate length of twenty-three miles, as a means of joining the several lakes. In the year 1773, this line was surveyed by James Watt, who reported favourably of it, and proposed that the lakes should be connected by a canal of a very moderate size. Nothing farther was done till the early part of the present century, when Telford and Jessop were employed to make new surveys. These engineers recommended a canal of such dimensions as should admit frigates of thirty-two guns, and merchant ships of 1000 tons burden, particularly those which had been accustomed to make the voyage from Ireland to the eastern parts of Scotland round the dangerous passage of the Orkneys. The plan was agreed to, the public money voted, and the dimensions fixed on as follows: width of the canal one hundred and twenty feet at top and fifty feet at bottom, depth twenty feet, locks one hundred and eighty feet long, forty feet wide, and with a rise or fall of twenty feet. Operations were commenced in 1803, and were continued for the long period of twenty years before their completion. The canal commences on the north-east at about two miles from Inverness, where a sea-lock opens a communication with the open sea; and from thence it proceeds towards Loch Ness, to the level of which it is raised by means of four locks. This loch is a fine sheet of water twenty-four miles long by more than a mile broad, and forms part of the connected chain of water communication. Another short canal brings us to Loch Oich, one of very small dimensions, and so shallow in some parts that it had to be deepened for the purposes of the canal. A short cut connects this loch with Loch Lochy, to which succeeds Loch Eil. At the latter place there is a remarkable assemblage of eight connected locks, called "Neptune's stairs," whereby the canal descends sixty-four feet, and soon afterwards joins the Atlantic. As a commercial enterprise this canal has proved a total failure; the expenditure has been enormous, and the receipts, obtained by tolls on the vessels and boats passing through the canal, have never been equal to the annual expense of management. For many years past, the Government is scarcely decided whether to abandon the canal altogether, or to expend large additional sums in keeping it in repair.

The canals of Scotland, including the Caledonian, are less than three hundred miles in aggregate length. The Edinburgh and Glasgow is about thirty miles in length; the Forth and Clyde thirty-five miles, with about forty locks; and all the others, about seven or eight in number, are small. The Irish canals are on rather a larger scale than those of Scotland, with the exception of the Caledonian.

All canals, whether foreign or British, whether of large or small dimensions, whether for the passage of sailing vessels or for small barges, are constructed on certain principles of resemblance, which enable us to speak of them as a whole. We shall therefore without professing to enter very deeply into the matter, present a few details calculated to illustrate the general nature of Inland Navigation.

Construction of Canals.—Aqueducts.—Embankments.

The main principle whereon all canals are constructed is this, that the boat or barge shall pass along a perfect level, neither inclining in the one direction nor the other; since, if this level were not attained, the water would form a stream from the upper to the lower parts, and the boats would pass up the canal at a great disadvantage. If the ground over which the canal passes should be, as is generally the case, unequal and at different levels, the effect is attained by three modes of proceeding: 1st. by elevating the depressed portions, by means of embankments and aqueducts; 2nd. depressing the elevated portions, by means of cuttings and tunnels; and 3rd. forming a kind of series of stairs, called *locks*, whereby one level portion is brought into communication with another higher or lower than itself. It rests with the engineer, after a careful examination of the ground, to determine in what proportions these three methods may be most conveniently combined; for we may remark that in almost every canal, all the methods are more or less employed. The preparative survey has especial reference to this among other points; for the general level at which the canal is fixed must have a vast influence on the supply of water obtained from it, as well as the facility of junction with other canals.

It is a general rule, observed as nearly as possible in the construction of a canal, to proportion the excavations and embankments so that the quantity of earth procured from the one shall be just sufficient for the formation of the other. Were this not the case, either a supply of earth would have to be obtained at great expense from some other quarter, or else a useless mound of earth would be accumulated, which would be no easy matter to get rid of. Sometimes a canal runs along the side of a declivity, in which case either one bank will require more raising than the other, or one will have to be excavated while the other is embanked; and sometimes alternate embankments and excavations succeed each other with great frequency; but it is generally contrived that the entire mass of earth accumulated in the one case shall nearly correspond with that required in the other. It sometimes happens, however, when the cuttings would have to be made through solid rock, the expense would be too great if this rule were abided by, and a deviation thus results. All these are points requiring great attention and skill on the part of the engineer.

Canals are not often square or perpendicular at their margins. The bottom generally slopes off upwards, the slope being regulated by the quality and difference in the tenacity of the soil. The slope sometimes becomes a good deal worn by the motion of the water, insomuch as to diminish irregularly the width of the towing-path; this is remedied in some degree by planting the sides with aquatic shrubs and also by driving stakes into the banks at short intervals along the water-line, so as to form a rude wicker-work, in places where the soil is loose and porous. It frequently happens that canals have to be formed more or less by artificial embankments of loose materials, or that they are excavated in earth, sand, rock, &c., so very porous as to allow the water to escape by filtration. To remedy this, the usual way is to make the excavation much wider and deeper than the intended dimensions, and to line it to the thickness of two or three feet with a tenacious clay mixed with gravel. A trench, three or four feet in width, is also dug out in the middle of each side-bank, to at least three feet below the bottom of the canal, and this in like manner is filled up with clay; this trench is made principally with the view of preventing rats and vermin from perforating the banks and occasioning breaches. When once the water has attained a very small egress, it gradually washes it wider; so that sometimes in a few hours a breach may be formed sufficient to empty the canal, and require weeks or even months for its repair.

When a canal has to be carried over a valley, two plans are adopted according to circumstances; the one to form an artificial mound or embankment, on the surface of which the canal flows; the other to construct a kind of bridge of timber, stone, brick, or a combination of two or all of these. If the valley is very deep or extensive, the latter plan is more generally adopted. As an instance of an iron aque-

duct, we may mention that constructed by Telford for the Shrewsbury canal. This canal passes over the valley of the Tern, for a distance of a hundred and eighty feet, upon an aqueduct made wholly of cast iron, excepting only the nuts and screws, which are of wrought iron. Another aqueduct, made by Mr. Jessop on the Ellesmere canal for crossing the river Dee about twenty miles from Chester, is an unusually large specimen of canal aqueducts. Nineteen massive conical pillars of stone, fifty-two feet apart, the middle one being no less than a hundred and twenty-six feet in height, support a number of elliptical cast-iron ribs, which by means of upright and horizontal bars support a cast-iron aqueduct about a thousand feet in length, twenty wide and six in depth, composed of massive sheets of cast-iron, cemented and rivetted together, having on its south side an iron platform and railing for the towing-path. There are not, even among the viaducts of modern railroads, many structures which will exceed in boldness and magnitude this aqueduct in the Ellesmere canal.

Embankments are formed by depositing loose earth in the line which the canal is to follow, to such a height as will bring the canal to a proper level. Between Wolverton and Cosgrove, on the Grand Junction canal, a stupendous embankment has been executed; it is half a mile in length, and in some parts thirty feet high, and by its construction a great number of locks have been avoided. A still larger amount of lofty embankment occurs over the valley of the Boyne, in Ireland; and on the same canal is one embankment reaching to the enormous height of ninety feet.

Cuttings.—Tunnels.

Where the canal is to be carried at a much lower level than the surface of the ground, the soil is either cut away down to the proper level to form a channel for the canal, or a hole or tunnel is bored through, large enough conveniently to receive the canal. One or other of these plans is adopted according to influencing circumstances, among which are—the depth below the surface, the nature of the soil, and the value of the land above. In the mining districts long tunnels or adits to mines were constructed long before the introduction of canals; thus, in the neighbourhood of Matlock in Derbyshire, the Helcarr Lough has been cut through the solid rock for nearly four miles for the purpose of draining the several lead-mines in the vicinity; Worksworth Moor Lough, nearly three miles in length, and Cromford Lough, of two miles, with many others of lesser note, are also to be found at great depths in that neighbourhood. But the first tunnel that we read of expressly intended for canal navigation, was that on the the Languedoc canal, in France; and the first in this country was the entrance made by Brindley to the Duke of Bridgewater's canal at Worsley.

In the construction of a tunnel, as the workmen proceed mole-like under ground, it is necessary to take scrupulous precautions in reference to the level and bearings of the line. The first thing to be attended to is to execute a survey of the ground through which it is to pass; this is done by tracing a line in a vertical plane parallel to the direction of the tunnel; to obtain which the relative levels of the principal points along the line upon the surface are ascertained. At certain spots along this line vertical pits or shafts are dug, either for the sake of free ventilation, or for commencing and carrying on the excavation of the tunnel at several different places at the same time; through the shafts made for the latter purpose the earth is hoisted out from the tunnel, and the water pumped out if any should occur. The shafts being sunk to the requisite depth, which is ascertained from the levels which have been taken at the surface, a heading, or small tunnel, at least sufficiently high and wide to allow the men to move freely in the work of excavation, is commenced just below the crown of the intended tunnel; it is carried forward from one working shaft to another, as nearly as may be in a straight line, till a connexion is formed between all the shafts and the two ends of the tunnel. If, in the progress of the heading from one shaft to another, the air becomes so bad as to oblige the workmen to desist, an air shaft is commenced from above, and sunk vertically to the point at which the heading was left off. Thus, in excavating the tunnel of the Thames and Medway canal, the air was found to be so foul that eleven air-shafts had to be sunk in addition to twelve working-shafts. After the heading has been driven from one working-shaft to another, or a complete perforation obtained throughout the whole of the intended line, the roof of the tunnel is commenced, and is left either in a smooth state, or is lined with brick or stone, according to the nature of the ground.

Canal-Locks.

One of the most important and remarkable portions of a canal is the *lock*, by which an ascent is made to a higher level, or a descent to a lower. In engineering language the name of *pound* is applied to the perfectly level portions of a canal, between the locks, so that the canal consists of an alternating series of "locks" and "pounds." The frequency with which these alternations occur depends upon the undulations of the ground; for if the ground ascends uninterruptedly, or if it ascend and descend at short intervals, then the level "pounds" must necessarily be short, because locks must be interposed with much frequency; whereas if the ground be tolerably level, very few locks will occur. Thus it is found, in one English canal, that locks are required at intervals averaging less than half a mile each; while in another instance a canal nineteen miles in length has only one lock.

The lock may be compared to a liquid stair, down which or up which a laden boat proceeds by a change being effected in the level of the water in the lock; the boat does not cease to float, but the water on which it floats is elevated or depressed by the increase or decrease of its quantity, and the boat is influenced by this elevation or depression. If the canal sloped downwards, a boat might proceed in that direction by the force of the current only, but it could not proceed *up* the stream without a powerful tractive force. The aim is to equalize the draught up and down the canal, and this can only be effected by having a series of dead levels.

A rude approximation to the gates of a lock, still in use in some parts of England, is the following. A beam or sill is fixed across the bottom of the stream or canal; and directly over this, but at the water's surface, is placed a second but moveable beam. Against and behind these parallel beams a set of loose boards are placed upright and close together like a door, so as to obstruct the progress of the stream. When a boat is to pass, the boards are either removed singly, or if they can be prevented from floating away, the upper beam is lifted or moved round, so as suddenly to let go the whole system, and thus afford a temporary increase of depth, to enable the boat to pass or repass the otherwise too shallow water. Since these rude kinds of gates are supposed to be placed at the upper end of the fall or shoal over which they are temporarily to increase the depth of water, and since the boat is to pass through the gate while the accumulated water rushes out with great force, it is evident that this must render it difficult for a boat to ascend the stream, and must accelerate it too much in descending. For the navigation of boats, a preferable mode of using such gates is to place the gate in moderately deep water at the lower end of the fall or shoal, and such that a boat may pass up through the gate before the water has been raised by it; the gate is then shut till the water rises sufficiently to enable the boat to ascend the fall or shoal, which it does in almost still-water. This arrangement constitutes a kind of half-lock; and indeed it is supposed that the casual position of two of them near each other had given rise to the invention of the lock; for in that case it would soon be seen, that when the lower of these two gates was closed, and the water above it had risen to a sufficient height, such water would be nearly stationary at the upper gate, and would afford an easy passage through it; if, therefore, the boat were ascending, the upper gate being next shut, the water above it would rise, and enable the boat to proceed a stage further in the ascent.

Whether or not the invention of the lock was derived from the contrivance just noticed, the action of it may be briefly described as follows:—A single lock is generally an oblong chamber, about seventy or eighty feet long, seven or eight wide, and lined with brick. It has a gate at each end, which, when open, connects it with the upper and lower "pounds" of the canal; but when closed cuts off this communication. We will suppose that a barge is about to pass upwards through the lock. In order that the barge may enter the lock, the following conditions must be observed: 1st. that the upper gate is shut; 2nd. that the lower gate is open; and 3rd. as a necessary consequence of the second, that the water in the lock is on the same level as that in the lower pound. These being the conditions, the barge is floated into the lock, and the lower gate closed. Water is then admitted through a valve from the upper

pound, till the lock is filled to the level of the upper pound. As the water rises, so does the barge also; and when the lock is filled, the upper gate is opened, and the barge emerges from the lock, thence to pursue her journey along the upper pound of the canal. If on the contrary the barge is about to descend, the conditions must be thus: 1st. the lower gate must be closed; 2nd. the upper gate open; and 3rd. the water in the lock must be on the same level as that in the upper pound. The barge enters the lock, and the gate is closed behind it; then a valve is opened by which water flows out of the lock into the lower pound, until both are at the same level. The lower gate then opens, and the barge is floated out. This operation is called "locking-down" the canal, whereas the reverse operation is that of "locking-up."

By a little consideration of this routine, we shall see that an inevitable waste of water occurs; for in order that the lock, when on a level with the upper pound, may be reduced to that of the lower for the transit of a barge downwards, a quantity of water must flow from the lock into the lower pound equal to their difference of level; and when, the lock being at the low level, the level is required to be raised in order that a barge may pass upwards through the lock, water must flow from the upper pound into the lock till the latter is filled to the highest level. Hence the water always descends, at each passage of a boat; and a certain portion of water is drawn from the summit level by this means. In order to prevent or at least to lessen the serious loss, which in dry seasons sometimes threatens to exhaust the canal, engineers frequently adopt the use of *double-locks*, by which half the waste of water is prevented. A double-lock consists of two oblong chambers, ranged side by side, and having a sluice in the brick partition which separates them; each chamber has a gate at each end, the upper connected with the upper pound of the canal, and the lower with the lower. Supposing one chamber to be filled to the higher level, and the other to the lower, and a barge about to ascend, the ascent would be managed thus:—The barge would flow into the chamber having the lower level of the water, and the gate would be closed behind it; then all four gates being closed, the sluice in the partition wall would be opened, whereby half the water in the full chamber would flow into that which contains the barge, till both are on the same level. Then the sluice would be closed, and a valve opened, by which the chamber containing the barge would be filled with water to the level of the higher pound; after which, the upper gate of that chamber being opened, the barge would float out. In the reverse operation, a barge about to descend the canal would float into the upper-level chamber; all the gates would be shut; the sluice would be opened; the water in the two chambers would be brought to the same level; the sluice would be closed, and a valve opened between the lower pound and the chamber containing the barge; the water would sink to the lower level; the lower gate would be opened, and the barge would issue forth on her journey. It is easy to see that half the lock-full of water is thus saved, by causing half the ascent or descent to be effected by the transference of water from one chamber to another. By putting more than two chambers to the lock, still less water would be lost, but the increased cost would more than neutralize the advantage. The *lift* of a lock, that is, the difference of level between the upper and lower pounds, depends on circumstances; if, in a canal of a certain length, a certain amount of rise is to be effected, it may either be brought about by a small number of deep locks, or a larger number of shallow locks; the former entailing the lesser expenditure of time, and the latter the lesser expenditure of water. Locks are to be found with every amount of "lift" from one to eighteen feet; but eight feet is about an average.

Supply of Water to a Canal.

In such cases as the Great Ship Canal of Holland, where both extremities of the canal communicate with the sea, the supply of water is obtained from the sea itself; but where, as in most of the canals of England, there is no immediate connexion with the sea, natural springs must be so regulated as to flow into the canal as fast as waste is occasioned by lockage. When it is necessary to establish a navigable communication between separate valleys or basins of country, and where a double lockage,—that is, a descent in both directions from an intermediate summit-level,—is unavoidable, the summit is generally too high to permit a regular supply of water from being drawn directly from the streams on either side; or these streams are not unfrequently appropriated to the service of mills and manufactories, and, therefore, cannot be applied to the feeding of the canal. Under these circumstances, it becomes necessary to collect the flood-waters of the adjacent higher grounds into proper reservoirs, to be drawn off into the canal as occasion may require.

The selection of a proper situation for a canal-reservoir requires all the skill of the engineer. Much must always depend upon local circumstances, but the principal objects attended to are the following:—1st. that the reservoir should be sufficiently low to collect the flood-waters from an ample surface of country; 2nd. that it should be so high as to enable all the water it contains to be drawn into the summit of the canal; 3rd. that the bottom and sides of the reservoir should be naturally impervious to water, otherwise much trouble and expense will be incurred in rendering them so by artificial means.

Whether the water is obtained from a reservoir, or from natural springs issuing above ground not far from the canal, a channel called a "feeder" is generally provided. It sometimes happens, where reservoirs are situate some distance above a canal, and a brook-course leads from the reservoir to the canal, that the water is left to take its ancient course on being let out of the reservoir, flowing in such a channel as the nature of the ground will admit; but generally speaking, an artificial brick channel is constructed for the flow of water. There is a clause in most canal Acts of Parliament, empowering the company to search for, and divert to their use, all springs of water within certain limits on either side of their line, as feeders for the canal; thus, in the Acts for the Newcastle-under-Lyne Junction, the limit is fixed at one thousand yards; in the Aberdeen, Polbrook, Thames and Medway, Wilts and Berks, and a few others, the limit has been extended to two thousand yards. Sometimes, in very dry weather, all the sources belonging to a canal company are so exhausted, that they cannot obtain a supply adequate to the waste by lockage; and it is then often necessary to purchase water at a heavy expense from water companies.

As a means of economizing the water used in a canal, with reference to the process of "lockage," *side-ponds* have been occasionally employed, in the following manner:—It is most common to employ two ponds, each having the same horizontal area as the lock, and made to receive one-fourth of its fill of water. The one of these ponds has its bottom at half the height or lift of the lock, so that when a valve is opened into it from the full lock, this pond receives one-fourth of its contents; this valve is now shut, and another opened between the lock and the second pond, which, in its turn, receives another fourth of the water, because its bottom is at one-fourth the height or lift of the lock; the second valve is now shut, and the remaining half-lock full of water is allowed to flow into the lower pound in the usual way. When the lock is to be filled again, the lower pound is first opened and the water allowed to flow into the lock, and then the higher one, by which half the rise is effected. This is obviously another mode of attaining the same end as results from the use of double-locks.

Mr. Field has proposed the adoption of side-ponds acting on the principle of an inverted siphon, in such a way that water would rise to the same height in one leg of the siphon as in the other. The method consists in connecting a lock with a side-pond by means of a long pipe or culvert, in such a manner, that when the water in the lock is allowed suddenly to run into the empty pond, it may rise in the latter nearly to the level in which it had fallen in the former; and the moment this occurs, the valve or sluice in the culvert is shut. The same thing should take place when the water is to be restored to the empty lock, except that whatever may have been the loss of water in the former case the total loss will now be doubled.

The whole arrangements connected with the supply of a canal with water, and the economizing of the water obtained for that purpose, are important and difficult, and are made the theme of constant investigation on the part of engineers.

Mode of Traction on Canals.—Boats and Barges.

As canals are, and always have been employed principally for the conveyance of goods, the vessels which navigate them are constructed with especial reference to that kind of traffic. All coarse and heavy goods, whose value is small compared with their bulk, are conveyed in open barges similar to the coal-barges on the Thames. But those goods

which require some care in packing, and require also to be well shielded from the weather, are generally conveyed in the vessels called "fly-boats." These are long and very narrow barges, with flat bottoms, into which the bales and hampers are stowed nearly from end to end, to a height considerably above the edge of the boat. Over the merchandize is thrown a canvass covering, by which all is sheltered from the weather. At the stern end of the boat is a small cabin, in which the boatman and his family reside during the voyage; for the time consumed in a long canal-trip is often several days, during which the only home which the boatman has, is to be found in the boat itself.

The boats and barges are drawn along the canals by horses, one or two in number according to the weight of the cargo. These horses travel at the rate of from three to four miles an hour, walking along a gravelled towing-path by the side of the canal. A rope is connected at one end to the horse and at the other to the boat, and by this rope the horse draws the boat. So easy is the motion of a boat along a canal, and so slight the force necessary to produce it, that an old and by no means vigorous horse can draw a load of twenty or thirty tons, with very little physical exhaustion.

If the tunnels which occur so frequently on canals were always provided with towing-paths, the traction of boats through them would be conducted on just the same principles as in the open canals. But, from a false notion of economy, many of the tunnels are made so small as to render the provision of a towing-path impossible. On this subject Mr. Meikle remarks:—"Some of the canals of England are sadly cramped, by the miserably confined state of their bridges, and especially of their tunnels; which are often so low and narrow as to have neither room for a towing-path, nor yet for the boatmen, except by lying prostrate, and moving the boat slowly along by pawing against the walls with their hands and feet. Some excuse might be pleaded for those of this sort which were first made, or which are in obscure districts; but it is remarkable that the tunnel of the Regent's Canal, which passes under a wing of the great metropolis, and was only made in 1819, should have no towing-path." The mode here noticed, by which boats are propelled through tunnels thus circumstanced, is simply as follows. As soon as the boat comes to the entrance of the tunnel, the horse is unloosed from the boat, and made to proceed overland to the other end of the tunnel, where it is ready to meet the boat after its emergence from its subterraneous passage. Two of the boatmen place two boards horizontally near the head of the boat, lie down on their backs, and push against the walls of the tunnel with the soles of their feet, in a slanting direction. This urges the boat slowly forward, and thus the men proceed till they have passed entirely through the tunnel.

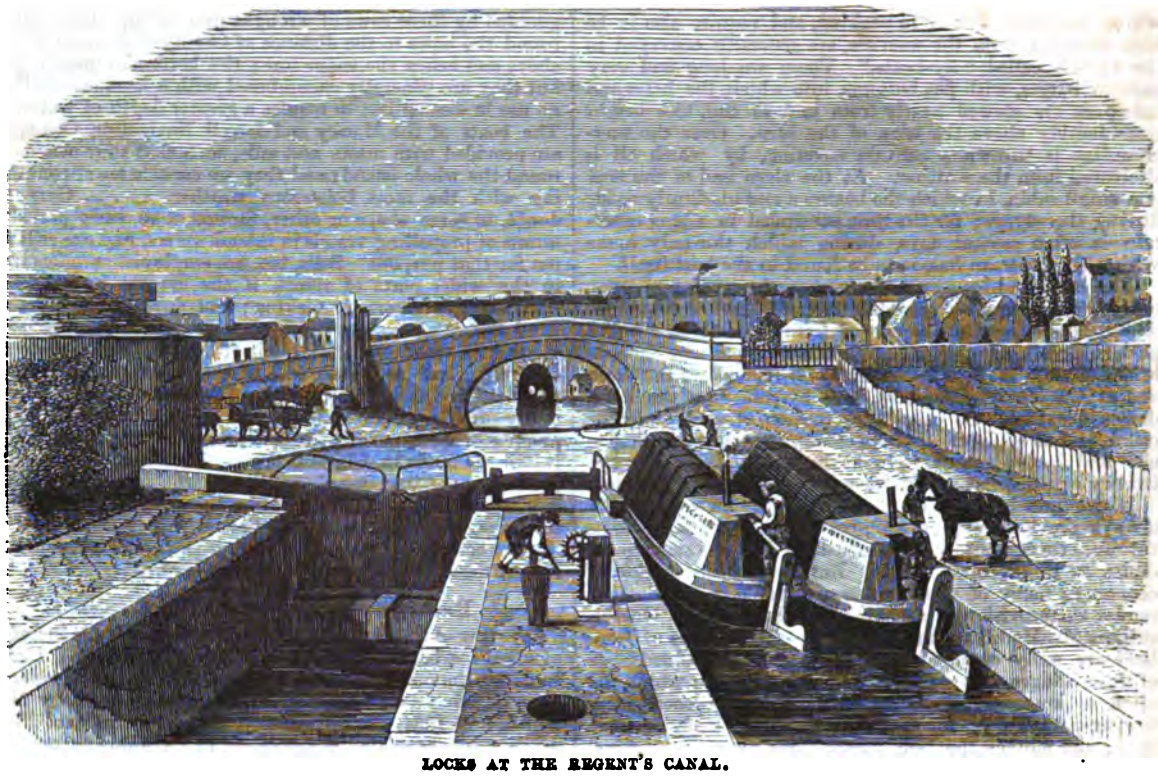
In many of the tunnels the heavier barges or boats are drawn through by steam-power, applied in a curious manner. A steam-boat is built just wide enough and high enough to pass through the tunnel without striking against the side; and in this vessel the power of the engine is made to turn a large wheel, on the circumference of which are a series of pins or pegs. A chain, whose links are as far asunder as the pins on the rim of the wheel, is connected with the wheel by resting on it so that some of the links shall fall on some of pins. The two ends of the chain (which somewhat exceeds the tunnel in length) are fixed to the bottom of the canal; and thus, when the engine is at work, the pins on the wheel cannot become extricated from the links, nor can it draw the chain itself along, and therefore must necessarily make the steam-boat itself move, by causing the pins to catch successively in different links of the chain. The steam-boat being set in motion, other boats or barges are attached to it, and thereby easily drawn through the tunnel. The steam-tug is made just alike at both ends, so as to pass either end foremost through the tunnel; and the chain is carried through it in such a manner as to avoid the admission of water into the middle of the boat.

In addition to what we have stated respecting barges and "fly-boats," which are used in the canals near London, we may quote from the *Encyclopædia Britannica* the following remarks concerning other forms of canal boats:—"Boats formed exclusively for canals are much longer and narrower than those which are also intended for rivers, or for river-navigation alone. It is found that when made of this shape they are tracked with more ease or speed than when of a wider and shorter figure, and they likewise occasion less injury to the sides of the canal. In the central districts of England, the boats are without masts. They are generally sharp at both ends having no projecting stern, but being guarded by three rows of wrought iron bands, which extend round the bows to the distance of twenty feet on each side, above and below the water-line; the bottom is nearly flat, but they are generally encumbered with a keel, which is of no use in a canal but to require a greater depth of water... The boats of the Mersey and Irwell Navigation Company are provided with masts and sails, such that they can coast round the whole island; and they are capable too of contending with the most boisterous weather..... Oars, no doubt, in some shape or other, formed at an early period a means of propelling vessels in inland waters, and are still in use for that purpose. Sails, too, are employed on lakes and in the wider parts of rivers, if the current is moderate, with sufficient room for tacking; and during a favourable wind almost all vessels which may on any account be provided with sails, are in the habit of hoisting them when on a narrow river or canal; but in the latter case the most usual method is to track or draw the vessel along by the power of men or horses, travelling along the banks, The practice of men tracking boats is probably very ancient, and is still the mode in China and other barbarous and obscure places, where vast numbers of men continue to be thus employed. Nay, to come nearer home, it was even continued on the Thames and the Severn till near the end of the last century, when proper towing-paths and horses were, for the first time, introduced on these rivers."

Recent increase of Speed on Canals.

On some of the British canals a very remarkable increase of speed has been attained within the last few years. Light boats for the conveyance of passengers at considerable speed, were introduced on the Glasgow and Paisley canal, by Mr. Houston in 1831. Mr. Grahame, in a *Letter to Canal Proprietors*, speaks of the improvement in the following terms:—"The ordinary speed for the conveyance of passengers on the Ardrossan canal has, for nearly two years, been from nine to ten miles an hour; and although there are fourteen journeys along the canal per day, at this rapid speed, its banks have sustained no injury." He proceeds to describe the nature and arrangements of this system, from which we learn that the boats are seventy feet in length, and about five and a half broad. They carry easily from seventy or eighty passengers, and occasionally have carried as many as a hundred and ten. The hulls of the boats are formed of light iron-plate and ribs, and the covering is of wood and light oiled cloth; so arranged that the passengers can be all carried under cover, and can yet have the privilege of an uncovered space. Passengers are enabled to move about from one cabin to another; and are much more at ease than in any kind of coach. The fares charged are at the extremely low rate of a penny per mile in the first cabin, and three-farthings in the second. Each boat is drawn by two horses; the tow-line being divided into two at the front end, and the horses attached one behind the other. The horse in front has blinders, while a boy rides on the one behind and guides both. The horses are changed every four miles, after a run of from twenty to twenty-five minutes; and they make three or four stages in the day. When two boats pass, the horses of one of them stop just before they come up to the horses of the other boat, and a boatman takes the tow-line off the hook and holds it in case it should come in contact with the other boat, which is passing it at full speed.

Mr. Scott Russell, who has made many important investigations into the motion of waves and of floating bodies moving in them, brought before the British Association for the Advancement of Science, about six years ago, some very curious results, in respect of the traction of boats on canals. On the general principle of the resistance of fluids to bodies moving in them, has been grounded the conclusion that it would be an impracticable thing to move the cumbrous boats upon canals at any but very low velocities, except by an expenditure of power, so great, that the ordinary methods of conveyance by roads would be cheaper. It has been generally believed that the resistance would increase with the velocity, by a law so rapid in its variation, that for a speed of two miles an hour there would be four times the resistance of one mile; for three miles, nine times that of one mile; for four, sixteen times; and so on. Here then was an obstacle to rapid communication by canals, which appeared insuperable. But Mr. Russell has shown that there is practically a circumstance which so completely modifies the application of this principle, that when once a certain point of speed is attained, an increase of speed will entail a diminution of resistance instead of an increase. In one of his experiments he found, that when a boat was drawn



LOCKS AT THE REGENT'S CANAL.

along a canal at varying degrees of speed, the resistance increased as the square of the velocities, up to a speed of seven miles and a half per hour; but that at eight and a half, the resistance was actually less than at seven and a half, so that it would be easier to draw a boat along at the higher degree of speed than at the lower. Finding this to be the case, Mr. Russell investigated the cause; and he discovered that where the water of a canal is disturbed by any cause, such as the admission of a rush of water momentarily into one extremity of it, or the impeding of a body moving in it, there is generated a certain *wave*, whose motion along the canal is altogether independent of the nature or velocity of the impulse given to it, and dependent only on the depth of the canal,—its velocity being precisely that which a stone would acquire in falling down one half of the depth of the canal. Mr. Russell was able to ascertain that, in the experiment which he made, this peculiar wave moved at the rate of eight miles per hour. As long, then, as the boat moved at three, four, five, six, or seven miles per hour, it remained in the rear of the wave; the wave had no effect on it; but at eight miles an hour, the boat was, in point of fact, *upon* the wave; and it might indeed be seen about the centre of the boat lifting it out of the water and diminishing the traction upon it. This very curious result is one of the many which are now engaging the attention of the British Association, and is looked to with much interest, as it is supposed to throw light on many difficult points respecting the formation and motion of waves at sea.

It is now, we believe, a general opinion among commercial and manufacturing men, that canals will not be so materially interfered with by railroads as was anticipated a few years ago. In consequence of the vast outlay in constructing a railroad, and the amount of current expenses for locomotive power and "maintenance of way," it is found that a fair dividend cannot be expected without the imposition of tolls so high as to prevent the traffic of coarse goods from being brought on the railways. Such commodities as stone, coal, bricks, slate, lime, manure, &c., are so bulky in comparison with their value, that the carriage by railway becomes too expensive; hence such articles, except in some few cases, are still carried per canal. It is a striking fact, that since the Liverpool and Manchester railway came into operation, the traffic on the Liverpool and Manchester canal has actually increased, from the new sources of traffic which the railway has been the means of developing.

That canal-boats may be drawn with great swiftness either by horse or steam power, is tolerably apparent; but there are many reasons why any attempt to make the speed on a canal exceed that of a horse, is likely to fail. These reasons are embodied in the following remarks by Mr. Meikle:—"There is but little reason to expect that any material increase of swiftness above that now described (on the Paisley canal) is likely ever to be effected with advantage on ordinary canals. Horses have already been pushed to their utmost speed; and were steam introduced, with all its machinery and apparatus, the weight would be so enormously augmented as to require a prodigious increase of moving power. But, on several other accounts, the ordinary canals, and almost everything connected with them, are totally unfit for a much greater velocity. Swifter boats would require canals to be interrupted by no locks, to have no contractions at tunnels and bridges, and to be incommoded by no barges or other slow and heavy craft, which cannot instantly be cleared out of the way. Drawbridges would be attended with a similar inconvenience. The slightest covering, even of broken ice, would occasion a serious resistance; whilst intense frost, which has no effect upon railways, arrests boats altogether. The Americans, it is true, pretend to have greatly outstripped us in swiftness; but it is fully as easy to read some of their statements on this head, as to give them entire credence. There can be no question that it is easier to propel a boat more speedily along a great river like the Hudson, than in our narrow and shallow canals, where much time is lost in passing through the locks, or great inconvenience is experienced in conveying the cargo from one boat to another past the locks. The swiftest boat would take almost the same time to pass through a lock as the most tardy and unwieldy barge; and it would be difficult and even hazardous, from the risk of striking against the ends of the buildings, to force it swiftly through, and especially to make it enter a tunnel, or the narrow contraction at bridges and aqueducts. On these accounts, and the perpetual risk of running foul of other craft, the pilotage of a very swift boat is a task with which few could be intrusted, or rather for which no one is competent. These, however, are difficulties and dangers with which railroads have not necessarily anything to do; because the railway itself acts as the most perfect pilot."

END OF THE TWENTY-SECOND VOLUME.

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